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Understanding Expert Mediation in Online and On-site Settings: A Case Study

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Understanding Expert Mediation in Online and On-site Settings: A Case Study

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DECLARATION OF ANY PREVIOUS SUBMISSION OF THE WORK

The material presented here for examination for the award of a higher degree by research has not been incorporated into a submission for another degree.

DECLARATION

I hereby declare that the present electronic document as well as the hard copy version stored in the library are identical in terms of content.

To my family, without whom…

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ABBREVIATIONS USED IN THIS THESIS

CHAT	Cultural Historical Activity Theory
DA	Document Analysis
DB	Discussion Board
EFL	English as a Foreign Language
ELT	English Language Teaching
ESL	English as a Second Language
FA	Feedback on Assignment
HCI	Human Computer Interaction
IDZ	Intermental Development Zone
LMS	Learning Management System
MATESOL	Master of Arts in Teaching English to Speakers of Other Languages
ME	Mediational Episode
MLE	Mediated Learning Experience
RI	Retrospective Interview
SDA	Sociocultural Discourse Analysis
SLTE	Second Language Teacher Education
SSVI	Semi-structured Validation Interview
TESOL	Teaching English to Speakers of Other Languages
ZPD	Zone of Proximal Development

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DECLARATION

I declare that the present thesis represents my own work, except where due acknowledgement is made, and that it has not been previously included in a thesis, dissertation, assignment, or report submitted to this University or to any other institution for a degree, diploma, or any other qualifications.

ABSTRACT

In recent years, education in universities around the world has been impacted by the advent of online teaching and learning as a mode of delivery. While much research has been developed about the impact of online instruction on student learning, as well as institutional development, there is an area which has not been researched fully: that of the mediation of learning in online and onsite settings.

Using a combination of document analysis, observation, in-depth interviews and retrospective interviews, the present intrinsic case study sought to understand how an expert instructor in a post graduate program, Stephen (pseudonym), mediated his students' learning in onsite and online environments. Furthermore, the case study sought to understand the affordances for mediation that each of these media offered the instructor.

The research findings seem to indicate that, in the context of the present project, the sociocultural construct of Activity System seems to operate somewhat differently from how it is generally depicted. The data showed that, while mediational activity oriented to the motive of conceptual development remained stable, its related operations – a consequence of the instructor's conscious decision-making – radically changed all constituent elements in the system. In this scenario, it is proposed that a more suitable vantage point for analysis of activity systems could be advanced by taking agency as a unit of analysis. That agency, understood as intentional and reciprocal interaction which is meaningful and multimodal, seems to significantly affect the operational scripts that constitute mediational actions. Additionally, as a consequence of that agency, the expertise of the instructor emerges as processual and in flux and not as a permanent state. The interactions that evolved within an Intermental Development Zone co-constructed through designed-in and contingent mediational efforts made it evident that the Instructor is as much a learner as his students.

These results have implications for teachers in general, teacher educators and language teacher educators in particular, and for sociocultural researchers who adhere to an Activity Theory paradigm.

CHAPTER I – INTRODUCTION

1.1 – Introduction

This enquiry sought to understand how an expert instructor enacted the mediation of students' learning in both online and on-site environments within a postgraduate education program. It reports on the case of this instructor who has significant teaching experience in both contexts and is considered an expert given his record of teaching, service, research and publication.

1.2 – Aims and rationale

During the past twenty years, online instruction has become a regular feature in both undergraduate and postgraduate courses (Delaney-Klinger et al., 2014; Tweddell-Levinsen, 2007). Although much research has been carried out on how to structure and deliver online courses (Burbules, 2012; King, 2002; Pittaway and Moss, 2014; Szabo and Schwartz, 2011;), most current online teaching practices appear to use the electronic medium either as a depository of materials or as a replacement for pen-and-paper activities (Laurillard, 2012). Much of the current practice in technology-mediated instruction is still tied to traditional teaching practices "imported" to the online medium from the on-site medium. However, a strand of research on human-computer interaction (HCI) has identified the significant potential that technology-mediated activity can have on education. Kaptelenin and Nardi (2006, p. 91) cite research carried out on online teaching within a Cultural Historical Activity Theory (CHAT) perspective, which concluded that "… the potential of technology to promote [learning] is directly related to the role of technology as a mediator of human activity."

Along the same lines, Laurillard (2012) calls for a reconceptualization of teaching as a design science, where the focus should be on solid pedagogical principles more than on the technology itself but bound by the possibilities that the

online medium offers, i.e. the affordances of the online environment, which are not the same ones offered by face-to-face media.

In this context, the present enquiry was oriented at understanding how an expert instructor who delivered his teaching both online and on-site mediated his learners' learning efforts. The purpose of this project was to identify those aspects of the instructor's mediation that may help illuminate his core conceptualization of teaching and learning online and on-site. My underlying belief, or foregrounded question, was that, while there might exist a transfer of teaching skills and behaviors from the on-site to the online environment, the affordances of the latter prompted significant changes to the instructor's pedagogical approach.

My involvement with this topic stemmed from my own positioning as an instructor in a postgraduate program. Even though I had completed the mandatory training to teach online, and was considered an effective instructor – according to my learners' assessment of my teaching – the proliferation of computer applications that support teaching, together with their quick demise, rendered me uncertain as to how I could best support the academic development of the learners I interacted with.

Because of this anxiety, I turned to colleagues who were more experienced than I and who could provide support for my professional development. It was at this moment that I met Stephen, who generously guided me through the first iterations of my online courses. It was within the context of our interaction, that I developed the intention of building a case study on Stephen's instructional practices, to which he generously agreed.

The value of such an enquiry resides in the potential it might have to inform how expertise in teaching is situated and adapted to the various locales where instructors operate. At a more concrete level, understanding how a particular instructor enacted various forms of mediation that suited a specific teaching environment could help inform pedagogical approaches currently used in the

postgraduate courses where I also taught, as well as resonate with other educators more broadly.

Though it is acknowledged that a single case study might prove insufficient for disclosing patterns and, thus, would be limited in its potential for extrapolation to other realities, it is my hope that the present account here may help interested others draw parallels between the research participant's practices and their own context.

1.3 – Research questions

Two questions guided the present enquiry. Both questions permeated all aspects of the research design: the way that the participant was selected, the research methods used and the collection and analysis of data stemming from the enquiry.

- *Research question # 1: How does an expert instructor enact the mediation of his/her students' learning efforts in on-site and online environments?*

The first question sought to be answered by relating it to understanding how the instructor organized and delivered his teaching – both in an *a priori* fashion, through planning, and in live interaction with his students' evolving conceptualization of the scientific concepts in the course – and thus offered mediation for learning.

This question embodies the first assumption in this study, namely, that learning is a process that crystalizes through explicit mediation between the content to be learned and the learner, by a more knowledgeable other. The role of the more knowledgeable other is to provide opportunities for the learners to internalize forms of self-regulation (scientific concepts about language for teaching) already existing in the community of practice (Lave and Wenger, 1991) that they aspire to belong to (in

this case, the teaching of second/foreign languages community), so that they can become fully-fledged community members and not just peripheral participants.

This particular assumption is informed by work on Sociocultural learning theory (Johnson, 2009; Kozulin, 1998; Vygotsky, 1978, 1986), the notion of cognitive apprenticeship (Lave and Wenger, 1991; Rogoff, 1991; Wenger, 1997) and the theoretical framework of CHAT (Engeström, 2000; Leontiev, 1978). This conceptualization of learning as a pre-requisite to the act of mediation (Vygotsky, 1978) that would eventually prompt development in the learners is the definition of the construct that guided this enquiry. The choice of this epistemological position was made given the nature of the enquiry. Its purpose was to understand how the mediating activity of one instructor evolved and was enacted in a situated setting (in this case, the graduate program in which the instructor teaches). For this intent and purpose, the Sociocultural theory framework, with its emphasis on intentionally mediated activity, together with the tool for analysis provided by CHAT, offered a degree of congruence between epistemology and methodology which I found helped align my ontological, epistemological and methodological positionings *vis à vis* my research topic and questions.

- *Research question # 2: What affordances for instructor mediation did each environment provide?*

In keeping with the position that all learning is a form of situated activity (every activity is bound by unique sociohistorical circumstances), a second assumption entailed looking at the mediating tool used (in this case, the instructor's enactment of particular pedagogical moves) and how the tool became adapted to the medium chosen for content delivery (online or on-site). My underlying belief was that the medium chosen for the delivery of instruction contextualized the interaction between instructor and students by providing various affordances that may, or may not, have been present in other mediums. Hence, teaching activities oriented to learning would be dependent upon the sociohistorical and cultural affordances for

action that were given to the instructor (Richardson, 2012; Rocco, 2010) which seemed to be determined by culture (Kaptelenin and Nardi, 2006).

1.4 – Overview of the enquiry

The present report on the enquiry is organized into seven chapters. The chapters provide a narrative of the research design and process. Chapter II describes the context for the study. It provides information about the educational institution, its students and instructors (section 2.2), and, in particular, how the postgraduate program at the center of this research project was delivered online (section 2.3) and on-site (section 2.4). Chapter III introduces the theoretical background against which the enquiry was undertaken. It starts by laying out the main tenets of a Sociocultural perspective in respect to learning (section 3.2) and explains the role of two key constructs within that perspective (the Zone of Proximal Development and Scaffolding) alongside the Vygotskyan concepts of *obuchenie* (the teaching-learning dialectic characteristic of formal education) and *perezhivanie* (the subjective significance for an individual of a particular lived experience). It then centers on the characteristics of Mediated Learning Experiences (section 3.3) and describes two levels of scaffolding: a designed-in and a contingent level. Given that these constructs can prove difficult to identify, the framework of Cultural Historical Activity Theory (section 3.4) was introduced as a tool for data analysis.

Chapter IV details the Methodological aspects of the enquiry, addressing the research paradigm (section 4.1) and tradition (section 4.2) that guided this enquiry as well as the methodological choices made in terms of research design (section 4.3), selection of participant (section 4.4) and data analysis using a Sociocultural Discourse Analysis (SDA) framework (Littleton and Mercer, 2013; Mercer, 2004) (section 4.5).

Chapter V presents the findings in terms of designed-in mediation in online and on-site environments (section 5.2 and 5.3) and contingent mediation in the

same mediums (section 5.4). Finally, the interaction between online and onsite environments is depicted (Section 5.5)

Chapter VI provides a discussion and analysis of the findings, laying out how the data yielded evidence of the existence of various dialectical processes (Section 6.1). These processes are analyzed in terms of their designed-in and contingent nature (Section 6.2) as well as in terms of their enactment in the online and on-site environments (Section 6.3). From this depiction, the construct of *obuchenie* is discussed (Section 6.4), as well as the emergence of other research findings (Section 6.5.

Finally, Chapter VII introduces some of the contributions of this study (section 7.1), its implications (section 7.2), its limitations (section 7.3) as well as areas for further research (section 7.4) that were deemed from involvement in the present case study.

CHAPTER II – CONTEXT OF THE STUDY

2.1 – Introduction

This chapter outlines the institutional and pedagogical contexts where the enquiry took place. It discusses how instruction is delivered in both on-site and online environments at a postgraduate level and also describes the characteristics of the students and faculty who teach in the program. In keeping with the ethical guidelines that oriented this study, all data have been de-identified so that neither the participant, neither the institution nor program can be readily identified.

2.2 – The institution, its students and instructors

This enquiry was carried out at a mid-Atlantic postgraduate school in the United States of America. The institution was almost 100 years old and has garnered an international reputation for its excellence in teaching, research and outreach. It comprised various schools catering for both undergraduate and postgraduate programs. Among the postgraduate programs, there was a culture of online instruction that was over three decades long. At the time this research project was conducted, and as a consequence of access to funds from a federal grant to promote online teaching and learning, the institution had developed a whole host of new online programs, amongst which was a Master of Arts program in Teaching English to Speakers of Other Languages (MA-TESOL).

The MA-TESOL was a 30-credit program that could be taken entirely online, entirely on-site or through a combination of online and on-site. Students were also afforded the chance to participate in an intensive on-site version of some of the courses in the program during the summer, as is common in most American universities. On average courses were organized around 10-week modules. In the on-site version of the program, there were ten weekly two-and-a-half-hour classes, each covering one of the modules in the syllabus. In the online version, each module

lasted for a week and was organized around a series of tasks. The first task engaged students with a topic and required that they disclose what they knew about it and learned some aspect of the new scientific concepts through reading or watching videos. This was done individually. Next, there was a Discussion Board Forum where students collaboratively completed a task. This was followed by another Discussion Board Forum or a task where students collaborated in pairs or small groups. Finally, there was an assignment that students completed individually. All courses in the online environment were designed along the same template provided by the university's instructional design team and course conveners, and both tutors and designers had to adhere to these standards, with little scope for innovation.

The faculty in the program encompassed locally based instructors, as well as instructors residing in various countries around the globe. This "distributed" faculty provided an updated perspective on the field of TESOL through their courses and through regular webinars that they gave for the university. In these, they shared their research and local perspectives, thus enriching and updating the curriculum and contributing to the dissemination of local expertise. Most instructors possessed a doctoral degree in Education or Applied Linguistics, though some (mostly those who teach the experience-based subjects, such as the Methods courses and the Practicum) had Master's degrees. However, they were all very seasoned professionals, with wide experience teaching in various countries around the world, and who had built a reputation through publishing coursebooks and other student-oriented materials that were innovative at the time of their publication. Additionally, they kept active in the profession, regularly presenting at local and international conferences, and occupying positions of leadership in national and international teacher associations. All faculty in the program went through a mandatory induction program with a strong emphasis on the use of technology for teaching, whether they were to teach exclusively online or both on-site and online. Finally, it should be noted that, with the exception of three full-time faculty members in the program, all other MATESOL instructors also taught in intensive English as a Second/Foreign Language (ESL/EFL) programs, a kind of experience which was highly valued by

program administrators as it kept the faculty connected with the actual practice students in the program were preparing for.

There were also some challenges to this particular setup. First, the fact that instructors were distributed around the globe implied that regular meetings among faculty were difficult to arrange. That was one of the reasons why mandatory start of semester, mid-semester and end-of-semester asynchronous online meetings were instituted, where the program coordinator created discussion threads in online forums, and instructors provide their opinion on various matters concerning course setup and delivery, and student learning. Additionally, there have been few opportunities for research initiated by the program, as adjunct instructors residing outside the USA had their own research agendas tied to their full-time jobs. Finally, since not all courses were offered in every semester, instructor involvement with the program was not always attained. Some instructors were brought into the program as specialists to teach one specific course, which might have happened as sporadically as once every three semesters. When these courses had to be taught on-site, the online version created by the specialist instructor was used by a local adjunct as a guide, leaving little space for innovation by the local instructor who, in general, did not communicate with the expert who had developed the original version of the course.

Students came predominantly from the United States and were mostly self-funded since the university offered very few scholarships in this graduate program. Because of this, the majority of the students took the program entirely online or through a combination of online and intensive on-site summer courses. In general, they were teaching ESL full time, principally at the adult level. There were also internationally based students taking the program who might be American or have other nationalities. These students tended to be located in countries in South East Asia and came to the program with certificate level courses in EFL but no significant experience in the field. They generally taught children and adolescents and were taking the course in order to professionalize their practices. Students attending the on-site program were also a mixture of mid-career ESL/EFL teachers who came to

the university because of the prestige of the faculty, and also, career-changers who had always wanted to teach ESL as part of their social engagement as they live in a city which is very cosmopolitan and they had the chance to interact with numerous immigrants on a daily basis.

The makeup of the student body was another source of problems for the instructors. Those with no teaching experience generally took more time to grasp the scientific concepts found in the various courses. They also posed challenges to instructors who sought to base their course development on students' prior knowledge and experiences. In order to counteract these limitations, program administrators made it mandatory for those students with no teaching experience to engage in some practical teaching during two of the Methods for Teaching ESL courses. Though these experiences were not formally assessed towards final course grades, they were brought to bear during class as a way of fostering a link between theory and practice. Local teaching practice sites were selected by the students, so the quality of these practical experiences also varied widely.

2.3 – The online learning environment

Online course delivery was conducted via a cutting-edge Learning Management System (LMS). This particular LMS was equipped with various functions that helped instructors make the technology transparent. Kaptelenin and Nardi (2006, p. 79) describe transparent online interaction as a form of collaboration "in which the user can focus on his work, while the system—the mediating artifact—remains 'invisible.'" However, transparency is not a property of systems, nor can it be built into the system a priori. Instead, it is the result of the interaction between instructor and students, and students amongst themselves (Kaptelenin and Nardi, 2006).

Among the functionalities of the LMS mentioned above we could find:

- Input pages in the form of multimedia blogs that helped instructors introduce the concepts.

- Discussion boards where students and instructor interacted around tasks designed by the instructor following a template provided by the Department.

- A "speed grader" function that allowed instructors to provide online feedback on students' assignments and other performances during the course. This "speed grader" allowed for feedback to be provided to individual students, as well as offering chances for editing students' work via functions such as deleting, highlighting, underlining and providing side comments.

- A video-conferencing facility that allowed the teaching of synchronous lessons and also the chance for students to do videoconferences during group work and pair work.

- A multi-mode feedback system (comprising editing capabilities such as commenting, highlighting, correcting, and underlining) which, together with a function that allows for the design of task-specific rubrics and checklists for assessment, provided ongoing support to students' learning. This feedback could be written, provided through screen capture animations with sound, via video, or simply via audio.

- A function that enabled the instructor to respond to students' work in both collective ways (via comments on the discussion boards) and individually (by responding to the particular post of only one student), thus tailoring the kind of individualized support that was given to students on their work.

The faculty in the program developed a peer-mentoring scheme by which one faculty member with extensive experience in online instruction (our participant) acted as mentor to other faculty in terms of keeping the curriculum relevant while securing that the levels of interaction were high. This peer-to-peer mentoring was

sustained through online pre-semester, mid-semester and end-of-semester virtual meetings among faculty teaching that semester.

Additionally, the LMS provided students with the same online tools, which maximized opportunities for interaction among themselves and also with the instructor. In this sense, they, too, could organize peer-to-peer videoconferences, respond to and edit their peers' work, and even teach one another.

2.4 – The on-site learning environment

The postgraduate program in question had a clear directive to promote active learning along the lines of the theory of Experiential Learning as evidenced in the work of John Dewey (1938/1999) and David Kolb (2015). This philosophy of teaching was imbued in both online and on-site courses, though it was most readily seen on-site, where students engaged in a number of experiential activities, such as volunteering to teach in community-based organizations, or developed collective learning projects, that incorporated elements of classroom-based research and which took them directly into the field of TESOL from day one. As is the case with most American postgraduate programs, classes were small (12-15 students per section) and instructors offered weekly office hours for student support. These hours were actively used as an extension of the work done in class and took the form of one-to-one or small-group tutorials. Additionally, the program had established collaborative relations with a number of community-based organizations for which faculty and students acted as volunteers, advisors or assessors (in those cases where assessment of second language learners was needed).

Furthermore, all courses were built using a "Backward Design" logic. Backward Design (McThige and Wiggins, 2005) is an approach to curriculum design aimed at fostering understanding by purposefully designing learning opportunities. The process starts with determining end results, then identifying sources of evidence for the attainment of these results and, lastly, designing the teaching and learning

sequence of tasks and activities which will ascertain that the end results are met. In this sense, all courses in the program had specified an authentic performance task that replicated how a TESOL professional would use the particular scientific concepts learned in the course in real life once they graduated and became teachers. That performance task had clearly articulated assessment criteria that were worked with throughout the course. Moreover, these key performance tasks became part of the professional portfolio, which was a requisite for graduation from the program.

The description above highlights both the advantages and the challenges that instructors faced when working in this program. Tailoring the courses they taught to a very diverse student body and ascertaining relevance in terms of teaching contexts was a major hurdle. That is why, finding an instructor who was systematically able to address these constraints and successfully help students achieve the course learning outcomes was an opportunity for me to engage in a study of how this particular instructor actually managed to do so.

2.5 – Summary of Chapter II

In short, the instructor and courses that are the focus of this study present an updated case of good practice in the pedagogy of teacher education and make use of cutting-edge practices both online and on-site. This can be seen in student evaluations of the courses (which the participant shared with me), as well as in the results of the institutional review that the program undergoes every seven years (the results of which are a public document)[1]. Accessing this information was part of the initial data gathering for this research project. For example, by accessing the student evaluations of the participant over the course of seven semesters, it became clear that the participant performed at the level of excellent, having consistently achieved averages between 4.5/5. Likewise, the program review document yielded comparisons amongst faculty members from which it was deemed that the

[1] These documents have not been cited in the list of references in order to protect the participant by further anonymizing him.

participant ranked as the number one instructor in the program in terms of his teaching, outreach and publishing.

However, there is still a question as to what it is that makes this instructor so successful. My belief, prior to conducting this research, was that the mediational strategies of the expert instructor in the program played a significant role in that success. The basis for this belief evolved from my observation of the instructor, as well as from reading the feedback he received from students in his courses, which the participant shared with me. In the narrative section comments on the teacher evaluation forms, students would thank the instructor for his clarity in presenting the course contents, his support of students' during the course, the caring nature of his feedback and, more importantly, for always looking for ways to enhance students' learning.

When deciding on a topic for my research, and given my contextual positioning as an online instructor in an American university, I decided that exploring one salient case in order to understand how this participant enacted his mediation could help me better understand my role as online and on-site instructor, while also helping disseminate that expertise among the faculty, thus strengthening the program.

Having contextualized the study at an institutional level, I will outline the theoretical foundations that ground the particular view of teaching and learning within a theory of mediation.

CHAPTER III – THEORETICAL BACKGROUND

3.1 – Introduction

The ontological positioning of the present enquiry (see Chapter IV) sees reality as socially constructed by individuals. If this is the case, then there are as many realities as individuals (Bryman, 2012). However, within this perspective, individuals do not inhabit isolated worlds, but construct their reality in interaction with others. In this sense, the reality they construct is a direct product of their participation in situated socio-historical activities *with* others.

Likewise, at an epistemological level, in the context of this enquiry, knowledge is seen as a reflection of the individual's location in time and space (Lave and Wenger, 2001), interacting with other individuals within a community of learning context. This community context is formed over the convening activity of learning how to teach a foreign/second language. Hence, each of the courses that constituted the focus of this study was considered a convening activity for individuals who want to become language teachers by completing a graduate program (graduate in the US; postgraduate in the UK). In order to do so, they needed to learn about language and how it can be taught in second/foreign classroom settings (ESL/EFL). In other words, they needed to gain progressively higher levels of self-regulation in using the scientific concepts about language taught in the course so that they could be used as conceptual tools for engaging in teaching activities which are characteristic of the ESL/EFL field. These included not only teaching the language, but also responding to students' ongoing language development, providing formative feedback on their expression and comprehension of the second language, assessing performance, and modifying teaching to accommodate the diverse needs of the learners they serve. In this sense, Stephen, the participant, acted as mediator between the knowledge base of the profession (Freeman and Johnson, 1998) and his students' performance as teachers once they graduated.

In order to fully participate in the activities of a community, members negotiate and reify meanings. Reification is a process by which individuals attribute analytic or abstract concepts a material reality so that their subjective intentions become externalized as part of a socially-constructed reality (Wenger, 1997). It is in the tension between the subjective and the collective that knowledge about the convening practice is negotiated, created or reinvented and becomes externalized as new learning. Within this perspective learning is defined as enhanced levels of participation of an individual in a convening activity, or in other words, participation in a community of practice context (Lave and Wenger, 1991). In this respect, professionally trained teachers possess a thorough understanding of both, the language they teach, and how that language is organized and acts in social realms. It is the combination of these two kinds of knowledge, albeit from a scientific standpoint, that constituted the focus of the course Stephen taught.

Because of these ontological and epistemological stances, a theoretical framework was needed that could account for my intentions, decisions and process from a perspective that combined an explanation of learning as a social process with tools for its analysis. While the Communities of Practice framework acted as a conceptual heuristic to justify the alignments referred to above from the point of view of the participant and his students, the fact that I was not a part of the specific communities formed by Stephen and his students made it necessary to incorporate into this study other theoretical constructs that would help substantiate the claims I made. However, these contexts had to be aligned to the main tenets of a Community of Practice perspective, one where legitimate participation in community activities was mediated by a fully-fledged community member who engaged in ongoing interaction with his co-participants in order to attain the goal of the convening activity.

In searching for such a framework, the work of Vygotsky (1978; 1986) and his followers appeared as suitable for reasons that will be developed further in this chapter. In this section, I will discuss what has been termed the Sociocultural Turn in teacher education (Johnson, 2009) by analyzing the construct of mediation within

this perspective, by approaching the metaphor of scaffolding as a useful heuristic for mediated learning experiences (MLE), and by framing the study within the affordances of CHAT (Engeström, 1987; 2008) as applied to the mediational efforts of the participant.

In keeping with the Sociocultural orientation of the study, the act of teaching as mediation is understood in Vygotskyan terms as *obuchenie,* or the relationship between formal teaching and cognitive development, in this case, the professional development of future teachers. Vygotsky defines *obuchenie* as "teaching/learning as collaborative interactions governed by a mutuality of purpose" (1987, p. 212). This conceptualization of the teaching/learning dialectic permeated both the construction of the methodological framework for data gathering, as well as the analysis of those data.

Teacher education is understood within this study as the effective implementation of *obuchenie* by a teacher educator who orients his or her actions towards creating the conditions for key cognitive processes to be targeted so that learners can transform an ability in itself into an activity *for* themselves. This is done through explicit mediation, which Wertsch (2007) describes as the "intentional introduction of signs into the ongoing flow of the activity … designed and introduced by an external agent, such as a tutor, who can help reorganize an activity in some way [so that] sign meaning develops" (pp. 185—186).

In the following section, the concepts of learning, communities of practice and mediation are explained against the background of *obuchenie*.

3.2 – Vygotsky on learning

One of the key issues in Vygotsky's cultural-historical psychology was the dialectical relationship between the individual and the social. According to Davydov and Kerr (1995), perhaps the greatest contribution of Vygotsky's cultural historical

theory resides in his introducing, for the first time in psychology, of the notion of "collective activity in its universal, generic manifestation" (p. 15).

3.2.1 – Interpsychological and intrapsychological functions. Vygotsky (1978; 1986) saw the genesis of all mental activity as mediated by participation in social practices. To him, the development of mental functions starts in the interpsychological plane, with individuals participating in historically situated social activities. This participation helps them progressively appropriate forms of self-regulation that lead to intrapsychological control. This control enables the individual to "perform the function without help from others" (Kaptelenin and Nardi, 2006, p. 47).

However, it should be noted that while the emergence of a function in the interpsychological plane sets the conditions for its internalization by the individual, it does not guarantee the actual emergence of the function in the intrapsychological plane. What is needed is an account of the conditions necessary for such internalization. In many teaching contexts, the instructor introduces concepts that may have been reified by the profession's collective with the intent of promoting conceptual appropriation by the students. Conversely, that introduction itself is no guarantee that the new concepts will be used as conceptual tools by the students. For example, an instructor may have purposefully planned a series of mediational moves conducive to the appropriation of the new conceptual tools by students. However, unless students use these conceptual tools to perform the professional function required of them they cannot be said to have learned the new concepts and thus, it cannot be said that the instructor mediated these students' learning within what Vygotsky has called the Zone of Proximal Development (1978).

Vygotsky (1978, p. 86) defined this Zone of Proximal Development (ZPD) as "the distance between the actual development level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers."

Many naïve interpretations of the ZPD see it simply as a construct that allows learning to happen with the assistance (mediation) of a more capable peer, alone (Verenikina, 2004). However, such conceptualizations are flawed in that, according to Vygotsky, learning is, in fact, a pre-requisite for the creation of ZPD. He clearly states

> … an essential feature of *learning* is that it *creates* the zone of proximal development; that is, *learning awakens a variety of internal developmental processes* that are able to operate only when the child is *interacting* with people in his environment and *in cooperation* with his peers (1987, p. 90, emphasis my own).

An inherent value of the ZPD is that it brings to bear the issue of mediation. To Vygotsky, teaching and learning are not separate processes but dialectical ones, where one happens because of the other. Mediation at the point of need is what prompts development once students have managed to learn a new concept that resides in the social collective and use it as a tool in order to perform a particular social function (Bill, et al., 1996; Daniels, 2010).

In the next section, I will turn to a discussion of mediation and the ZPD.

3.2.2 – Mediation: ZPD and Scaffolding. The ZPD is a ubiquitous concept in education and it has been readily associated with a number of other concepts, such as the metaphor of scaffolding (Bruner and Sherwood, 1976; Wood et al., 1976). It stems from interpretations of mostly one popular definition of scaffolding as applied to tutorial interactions. In 1976 Wood et al. defined scaffolding as "a process that enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his [sic] unassisted efforts" (p. 90). Seen in the light of a tutorial interaction, where the instructor's intent is to help the learner accomplish a task, the reference to assistance can be easily equated to an instance of direct instruction. However, mediation that is organic, that is to say, that is oriented towards supporting the appropriation of conceptual tools so that new cognitive functions can develop, possesses a different nature. These interpretations have caused a

controversy in the field, with two positions existing: one that claims that equating the ZPD with scaffolding is simplistic and unfounded; and others who claim that the two metaphors are congruent because they are oriented towards the notion of mediation.

For example, this association of ZPD with scaffolding, at times, and direct instruction, at others, has prompted some sociocultural theorists (Chaiklin, 2003; Poehner, 2010; Swain et al., 2011; Verenikina, 2004) to take issue with such a simplistic match on various grounds. Chaiklin (2003) emphasizes that ZPD should be understood as an explanation of development within a staged theory of child development and not as a metaphor for learning, while Verenikina (2004) sees scaffolding as a form of direct instruction and not as a form of mediation. Also, Swain et al. (2011) reject scaffolding as a sociocultural tool altogether, given its apparent unidirectional nature where the more capable peer's function is simply to help solve a problem in the here-and-now, thus orienting the interaction to the solving of a task or problem, and not as support for development. Poehner (2010, p. 81) summarizes this limitation by claiming that scaffolding is not oriented towards helping learners develop new cognitive functions but to helping them complete a task.

These criticisms notwithstanding, it should nevertheless be acknowledged that "the concepts of scaffolding and ZPD have become important guiding ideas in education because within them is embedded a psycho-social model of teaching and learning" (Bliss et al., 1996, p. 38). This psycho-social model has permeated the field and established itself as a current paradigm to understand teaching and learning. Various authors (Gibbons, 2003; Sharpe 2006; Shrum and Glisan, 2010; Walqui and van Lier, 2010) emphasize that the metaphor of scaffolding can be readily applied to mediational efforts that teachers and peers make in order to promote learning and prompt the formation of the ZPD.

3.3 – (Re) Conceptualizing Scaffolding and the Mediated Leaching Experience (MLE)

In a reading paper undertaken as one of the units in this Doctoral program, I conducted a meta-analysis of 32 articles and book chapters that addressed the metaphor of scaffolding, in order to assess its worth as a form of mediation within a sociocultural perspective. This study was later published in a peer-refereed journal (Diaz Maggioli, 2013) and prompted the development of a framework for the analysis of mediational moves and episodes implemented during interactive teaching and learning. This framework accounts for organic mediation at two levels: a *designed-in* level (Hammond and Gibbons, 2005; Sharpe 2006), which occurs before the actual encounter between the teacher and learners; and a *contingent* level, which evolves as a result of the interaction between the teacher and learners. Proper, effective, organic mediation at the point of need would be the product of their interplay, in so far as certain conditions are met.

Sharpe (2006) differentiates between a macro and a micro level in educational scaffolding. The macro level targets the intentional design of the interaction by the teacher, considering such elements as the outcomes of the unit of work, the tasks that will be used in the different lessons, as well as the instructor's knowledge of the students and their developmental levels, their interests and ability.

Sharpe characterizes the micro level thus:

> scaffolding at 'the point of need' consists of the opportunities afforded by the teacher to support the students' understanding of the task or topic through a variety of discourse strategies such as questioning, recasting, or relating to students' previous experiences and multimodal strategies ... I refer to [this level] as contingent (2006, p. 214).

Moreover, to Holton and Clarke (2006, p. 131), "Scaffolding anticipates some act of construction. It is not an act of closure." At the designed-in level of scaffolding the instructor approaches the task of planning for teaching by fine tuning their

instructional decision making to the level of cognitive development of learners as perceived through his or her interaction with them. This tentative representation opens up opportunities for the design of learning experiences that focus on tasks that are within the learners' ZPD. The function of this level of scaffolding is to provide an organized sequence of work so that students can achieve specific learning goals. However, it should be noted that in planning, the teacher also has to make decisions as to how the handover of responsibility to students will be implemented, a move referred to as "fading" in the literature (Sharpe, 2006, p. 15).

Fading is important since it is the removal of the scaffold that prompts the transition from the interpsychological plane to the intrapsychological one, thus enabling self-regulation by the learners. Johnson and Golombek (2016) prefer the construct of "growth point" (McNeill, 2012, cited in Johnson and Golombek, 2016, p. 44) instead of the construct of fading, as providing evidence of learning. To them, a growth point acts as a vehicle for mediation which, when organically implemented, is conducive to learning. Because a growth point acts as a vehicle that allows thinking to be externalized while it is being shaped and surfaces during interaction, it can be said to attest to the fact that the mediated person has managed to appropriate the new conceptual tool and hence, mediation is no longer necessary. However, for growth points to emerge it is necessary that mediation be enacted within certain parameters.

According to Vygotsky (1986; 1978) and some of his followers (e.g. Feuerstein et al., 1980; Kozulin, 1998; Moll, 2014), an MLE possesses three criteria, which are rather self-explanatory: a) intentionality/reciprocity (active engagement by both expert and novice), b) transcendence (focus on the level of potential development) and d) meaningfulness (imbuing the interaction with meaning). Feuerstein et al. (1980) contribute two further criteria: contingent multimodality and social-to-individual orientation. By contingent multimodality they mean the use of semiotic resources other than language as mediational tools. Hammond and Gibbons (2005) and Wertsch (2010) also support this view. The latter considers that semiotic tools

other than language are crucial in the social and psychological development of individuals.

Finally, a social-to-individual orientation implies that culture and society act as a "generative force shaping the very nature of the human mind" (Kaptelinin and Nardi, 2006, p. 50). During our ontogenesis we learn and appropriate concepts already existing in our culture that are historically constructed and preserved in and through the social practices that embody them.

The relationships between the different components of this framework are illustrated on the next page by Figure 3.1

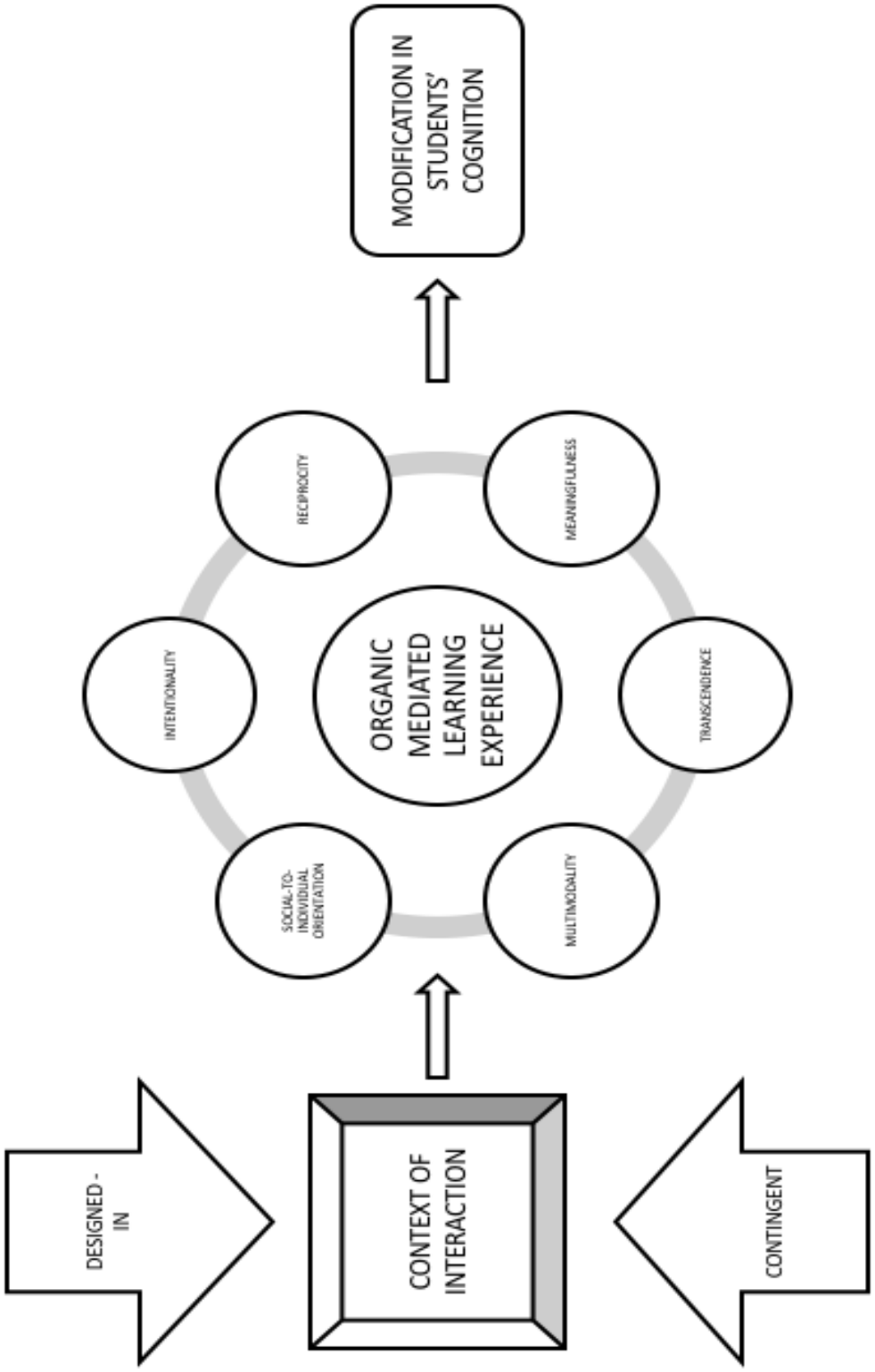

Figure 3. 1 – The Mediated Learning Experience Framework (source: original)

As it can be seen from the diagram, both the *a priori* and the contingent are considered in the context of interaction. When meeting the students, be it physically

or virtually, the instructor has already considered what forms of mediation he or she is going to apply. This is part of the process of instructional planning. However, these intentions actually crystalize in the form of mediational moves during interactive teaching and learning.

What determines whether an intervention by the instructor can be called an organic MLE is the degree to which that intervention incorporates the characteristics of organic mediation as explained above, i.e., whether there is intentionality, reciprocity, meaningfulness, transcendence, multimodality and social-to-individual orientation. When all these features are present in the mediational attempt by the instructor, students' cognition is modified as they appropriate the conceptual tools needed to act in the world, to participate in the convening activity. Hence, it is only when there is proof of that appropriation that the mediational experience can be called organic.

In selecting the mediational episodes on which to base my research, I first analyzed all samples of interaction in the transcript of the videoed lessons and the discussion board posting. I looked for the presence of each of the characteristic of an organic MLE and checked that the participant had identified a growth point as a consequence of his interaction with students by phasing his mediation. I built a corpus of mediational episodes based on this analysis which I then subjected to the participant for validation so that he could confirm that his choice of phasing was the result of his perception of students' having appropriated the scientific concepts.

From the 25 hours of video recordings, the monitoring of ten online Discussion Boards (DB) and the feedback provided by the participant on learners' assignments, I selected those episodes where the participant was offering mediation that was organic in a context of interaction centered around activities oriented towards the appropriation by students of relevant conceptual tools. In this regard, all mediational tools presented in this study matched the criteria and that offered instances of mediation.

In the mediational episodes selected, the participant resorted to various forms of mediation to ascertain that learners were at a growth point. However, it should be noted that the focus of the present research project is on the enactment of mediational moves as tools for teaching and that the mere presence of the mediational tool does not guarantee that mediation will happen. In this respect Swain et al. (2011, p. 2) remind us that "until used as such, [tools] offer only affordances and constraints to an individual." Hence, while tools are crucial elements in the mediation of social activity towards self-regulation by individuals, it is necessary to probe deeper into how the participant enacted his mediation within the socio-historical contexts of online and on-site teaching.

3.3.1 – The case for Scaffolding as a form of MLE. In the same year that Wood et al. (1976) coined their definition of scaffolding, Bruner and Sherwood (1976) analyzed scaffolding as enacted through the game of peekaboo and provided a depiction of the metaphor as one whose purpose is to transfer control of the activity over to the child. There is meaning making as the child progressively understands and takes control of the various actions and operations that conform this particular play activity while the caretaker scaffolds the child's attempts via multiple modalities (language, voice, and gestures, at least).

This latter definition of scaffolding is the one that best resembled the interactions in the present participant's classroom, with the instructor responding to the students' emerging efforts to master the content and skills of the course. This kind of mediation has been called *educational* scaffolding. Sharpe (2006, p. 213) defines it thus "Scaffolding … is a response to students' needs and 'looks different' in different contexts, that is, it responds to a particular group of students at a particular time."

Along the same lines, but extending the metaphor to learning artifacts, Sherin et al. (2004, p. 391) consider that the expert does not only lead the novice through a predesigned series of moves, but rather that he/she responds to the emerging understandings that students display so that appropriation of the new

conceptual tools is the result of co-construction and not just transmission. This characterization also points to relevant criteria of MLE, mostly with respect to the co-construction of understanding and negotiation that ensue from interaction that is reciprocal and intentional.

Finally, Yelland and Masters (2007) emphasize the collaborative nature of scaffolding where the learner's own intentions are the center of the process and different scaffolds are put into place taking into consideration the learner's actual level of development. They stress the fact that the end goal of any scaffold is to promote self-regulation in the learner. This depiction of the construct also tallies with the criteria of MLE discussed before and contributes a useful approximation to how scaffolding may be enacted within the ZPD.

In the context of the present research enquiry, it is relevant to analyze how mediational activity is performed in both on-site and virtual environments. Both, designed-in and contingent forms of mediation will impact the way in which the participant mediates his students' efforts. I will next characterize both designed-in and contingent scaffolding.

3.3.2 – Characterizing designed-in scaffolding. While I acknowledge that scaffolding at any level is a highly situated activity that is bound by the context in which it is enacted, and thus may be difficult to typify, I would like to attempt a characterization of potential routes through which instructional planning, the main designed-in scaffold, can be enacted in order to achieve an instructor's anticipated learning outcomes through interactive mediation.

Hammond and Gibbons (2005, p. 13), characterize designed-in scaffolding in action offer the following features: a) attention to students' prior knowledge and expertise; b) selection of tasks based on this priori knowledge; c) sequencing of tasks so that each new task stems from the previous one; d) promotion of various forms of participation and interaction; e) resorting to various semiotic systems to promote interaction; e) the presence of mediational texts, which I call "anchor" texts in this

paper, as they ground the scientific concepts for students; and f) the development of metalinguistic (language to talk about language) and metacognitive (being aware of how one thinks and acts) awareness in the process.

However, because all these forms of scaffolding are not rule-bound, their presence or absence is contingent upon the context for which they are designed.

On surface, all the features of designed-in scaffolding described above tally with my characterization of an organic MLE. When, correctly orchestrated, they should serve the purpose of mediating the collaborative scaffolding that will ensue from the interaction between students and the instructor. In this sense, an organic MLE offers yet another instance of the dialectic between the intentional and the contextual in that the instructor's understanding of the contextual prompts the decision to implement mediational texts, sequences of tasks, participant structures, semiotic systems and even the genres to be used during mediation. In turn, the implementation of these intentions during interactive teaching and learning will shape the way the instructor perceives these designed-in tools to operate, and will determine how and when the various features are brought to bear in successive designed-in instances.

Finally, designed-in scaffolds help teachers organize instruction so that all other forms of scaffolding can be effectively and efficiently enacted during interactive teaching. The planning or anticipation phase can be said to be as important as the contingent acts of mediation that happen during a lesson in so far as it lays the ground for the latter to be selected and implemented. However, for this kind of scaffolding to be implemented, instruction has to be dialogic and not just recitation. Any act of scaffolding will necessarily require a contingent phase during the actual act of teaching. The following section outlines the conditions under which this could be enacted.

3.3.3 – Characterizing contingent scaffolding. If designed-in scaffolding "is a dynamic and situated act that is responsive to a particular set of circumstances in a

particular classroom context" (Hammond and Gibbons, 2005, p. 12), then contingent scaffolding is even more so, as it operates at the micro-level of interaction, which is quite unpredictable as it depends on (or, is contingent upon) the intentional actions of teachers and learners as they engage in meaning-making.

Gibbons (2003, p. 267) defines contingency as "the way an adult judges the need and quality of assistance required by the learner on the bases of moment-to-moment understanding." One of the main functions of contingent scaffolding is to respond to students' initiatives to gain control over the activity. In this sense, Sharpe (2006) argues that the main function of this level of scaffolding is to increase prospectiveness or amplify students' attempts at gaining control over the learning activity. She cites the example of the typical questioning sequence composed of three moves: Initiate→Respond→Feedback (Mehan, 1979). This sequence has been reported extensively in the literature (see Nassaji and Wells, 2000 for a review of key articles on the topic) as a form of triadic dialog (Lemke, 1990) and has been depicted as one of the main characteristics of classroom talk.

In an Initiation→Response→Feedback (I→R→F) sequence, it is generally the teacher who initiates it by asking a question, and, once students give an answer, there are different choices of teacher action. The teacher can acknowledge a correct response and thus the sequence is closed, or the teacher can open up the final "feedback" stage in the sequence through further questioning, probing, or problem posing so as to engage students in further dialogic interaction. In the latter instance, there are more possibilities for all participants to contribute to, and profit from, the discussion which is oriented towards the co-construction (or at least, co-exploration) of certain scientific concepts.

One key factor in this sequence is the nature of the questions posed by the teacher. Sequences that lend themselves to transmission of information more than co-construction of knowledge dwell heavily on display questions (McNeill, 2012; Wright, 2016). In contrast, "referential questions, defined by Long and Sato (1983) as questions to which teachers do not know the answers (e.g., Why do you think the

author chose that picture for the book cover?)" (McNeill, 2012, p. 398) because of their very nature, open up opportunities to increase the prospectiveness of the interaction.

This does not necessarily mean that all transmission is enacted through display questions or all dialogic interaction is enacted through referential questions. However, as both types of question can be found in either style of instruction, referential questions offer more affordances to open up discourse and keep students engaged in ongoing exploration of the topic with the instructor. The "Feedback" moment in the sequence does not end with one student's answer.

At this point it would be useful to make a distinction between traditional classrooms (teachers reciting a script and students passively apprehending it) and dialogic classrooms (where teacher and students engage in productive talk via sustained conversation over a topic of mutual interest). Mercer and Howe (2012) depict the nature of talk used in dialogic situations thus:

> a joint, coordinated form of co-reasoning in language, with speakers sharing knowledge, challenging ideas, evaluating evidence and considering options in a reasoned and equitable way (p. 16).

In some respects, the I→R→F sequence is characteristic of classroom talk. In what can be called traditional classrooms, the sequence tends to be short-lived with the teacher posing a different question after getting the correct response. In contrast, during dialogic teaching, the discourse is opened so as to allow students to continue interacting and exploring the topic. Sharpe (2006) identifies three possible additional moves during Feedback that have the potential to enhance prospectiveness and thus extend students' understanding and learning: "Demand," the most strongly prospective move as students are asked to continue engaging with the content; "Give," a less prospective move as it does not always require a response; and finally, and "Acknowledge" move occurring after a more prospective move but requiring no further response, thus being the least prospective.

Sharpe (2006) contends that when students' responses are amplified through increasing the prospectiveness of the question,

> what starts as an IRF exchange can develop into a genuine dialogic co-construction of meaning … and thus provides the opportunity for the teacher to support students in absorbing new information into existing schema as they work within their [ZPD] to gain new understanding (p. 222).

But not all classroom talk can be considered a form of scaffolding. Walqui (2006) warns that there are two distinct forms of classroom talk, one which is scaffolded and one which is not, as in the case when teachers merely provide information through a "recitation script'" (p. 165). This author depicts scaffolded talk as talk in which "the teacher is intent on letting the students speak for themselves and encourages them to be precise and to present a clear argument" (Walqui, 2006, p. 167).

Contingent scaffolding has been the center of much research (Bliss et al., 1996; Hammond and Gibbons, 2005; Walqui, 2006) and various researchers have attempted different typologies of contingent moves.

To Hammond and Gibbons (2005), contingent scaffolding is the actual level of scaffolding, although they acknowledge that, "Without the designed-in features … interactional support may become simply a hit and miss affair that may contribute little to the learning goals of specific lessons or units of work." (p. 20).

These authors elaborate a typology of six forms of contingent scaffolding which has been widely adopted. These include: linking to prior experience and pointing forward; providing a summary comment after a series of exchanges (metacomment); appropriating the discourse of others (by both instructor and students); recasting what has been appropriated; elicitation via cues during I→R→F sequences; and

opening up discourse to allow for more dialogic sequences to occur, also referred to as increasing prospectiveness (Hammond and Gibbons, 2005, p. 23)

Finally, Walqui (2006) suggests a similar typology which includes; a) modeling, b) bridging background knowledge; c) contextualizing to students' experience; d) helping students build schemata; and, e) representing through alternative semiotic systems or genres.

One thing that becomes evident from a close analysis of these typologies is that they offer a standardized view of the moves which, to me, fail to account for the interactivity of the contingent moment. While they might prove useful tools to analyze discoursal configurations, they restrict understanding of how the scaffolding moves actually evolve during interactive teaching. Because of this, while they served the purpose of informing this study in terms of what research has provided about contingent scaffolding, I have chosen not to use them as categories for coding the data.

Because of this limitation in the literature, the descriptive categories used for coding the data in the present report have emerged from the data and are intended to capture the range of moves made evident by the participant within this particular research project. In this sense, the categories used for data analysis do not seek to become a taxonomy of mediational moves but are tools for understanding how mediation was enacted by the participant.

From the discussion above it becomes clear that analyzing how scaffolding is enacted in real-life classrooms is an undertaking that requires a framework for understanding not just the individual mediational moves, but their worth in terms of the overall activity system of teaching and learning, and their effect on the participants in the interaction.

Additionally, since I adhere to relativism at the ontological level and constructivism at the epistemological level (See 4.1.2), I will need to resort to tools

for the analysis of the interactions in question that capture both the complexity of the interaction, and the effect of these on the participants and activity. One such useful framework for analysis can be found in CHAT (Engeström, 2010; Leontiev, 1978; Sam, 2012).

3.4 – Cultural Historical Activity Theory (CHAT) as a framework for analysis

One of the challenges of undertaking qualitative research within a Case Study tradition is determining how to understand each case both holistically and in particular, within context. Hence, one of the challenges of the present research enquiry was how to capture both the individual and the social in on-site and online teaching activity.

Cultural Historical Activity Theory (CHAT) presented an opportunity for such analysis. Sam (2012, p. 84) defines it as "a framework to study the actions of people on both an individual and societal level simultaneously."

While promising, this Marxist theory is not without critics. For example, Backhurst (2009) encourages researchers to view this theory with a certain degree of skepticism. He argues that issues with CHAT include the lack of problematization of the object of activity; the diffuse role that the subject has in the activity by being equated to all other components; and, more importantly, that the model proposed by CHAT theorists fails to account for the relations that the different components bear to one another.

However, as McNicholl and Blake (2013, p. 287) contend, "… activity theory is not after all a theory but rather a general schema."

Precisely because the purpose of this enquiry resides in understanding how a self-identifying subject (expert instructor) enacts mediation oriented towards student learning (a well-defined object) using both physical and psychological tools

(the affordances of both online and on-site environments), the perceived limitation of CHAT is, in fact, a measure of suitability for the current project.

In this project, the motive or object was an understanding of expert mediation (as enacted by an individual human being) within a particular social context (the graduate program where he works), taken as an instance of natural life (the semester-long engagement of the participant with his students in online and on-site activities).

3.4.1 – Describing the Activity Theory Framework. In CHAT the unit of analysis is the activity itself (Leontiev, 1978) that is always motivated by an object (or motive) oriented towards obtaining a certain outcome. While the object motivates the subject to engage in activity, tools mediate the subject's participation. Concepts are psychological tools so, throughout the course of human life, individuals learn and appropriate concepts that already exist in their culture. Concepts, however, have not always been there. They are the result of positive and negative experiences of people who lived before that individual

In the present enquiry, the activity system is oriented towards equipping future language teachers with the conceptual tools to be able to use the object of language to perform a multitude of functions, such as explaining it, designing lessons to teach specific aspects of that language (grammar, syntax, semantics, and phonology) as well as ascertaining that they can assess the appropriacy of language used by their learners. In this sense, the object is in fact a tool and the course does not intend to teach language alone, but language as a tool for teaching language.

Leontiev (1978) saw activities as hierarchical systems where each activity contains actions or chains of actions that serve the purpose of fulfilling certain aspects of the object or motivation. These actions, in turn, are made up of a series of operations.

While activities have *motives* (objects) oriented towards an outcome, actions have specific *goals* that can be satisfied when *operations* in the script are implemented under certain conditions. I will focus on using CHAT to analyze data emerging from what I call an organic MLE. CHAT allows an analysis of the activity in itself but also of the actions and operations that propel the activity system towards the object or outcome. Because of this, this framework looks promising at providing a holistic view of the activity while, at the same time, allowing for the analysis of each of its components, as well as the interaction among them.

Figure 3.2 adapted from Hashim and Jones (2007) depicts the relationships mentioned above.

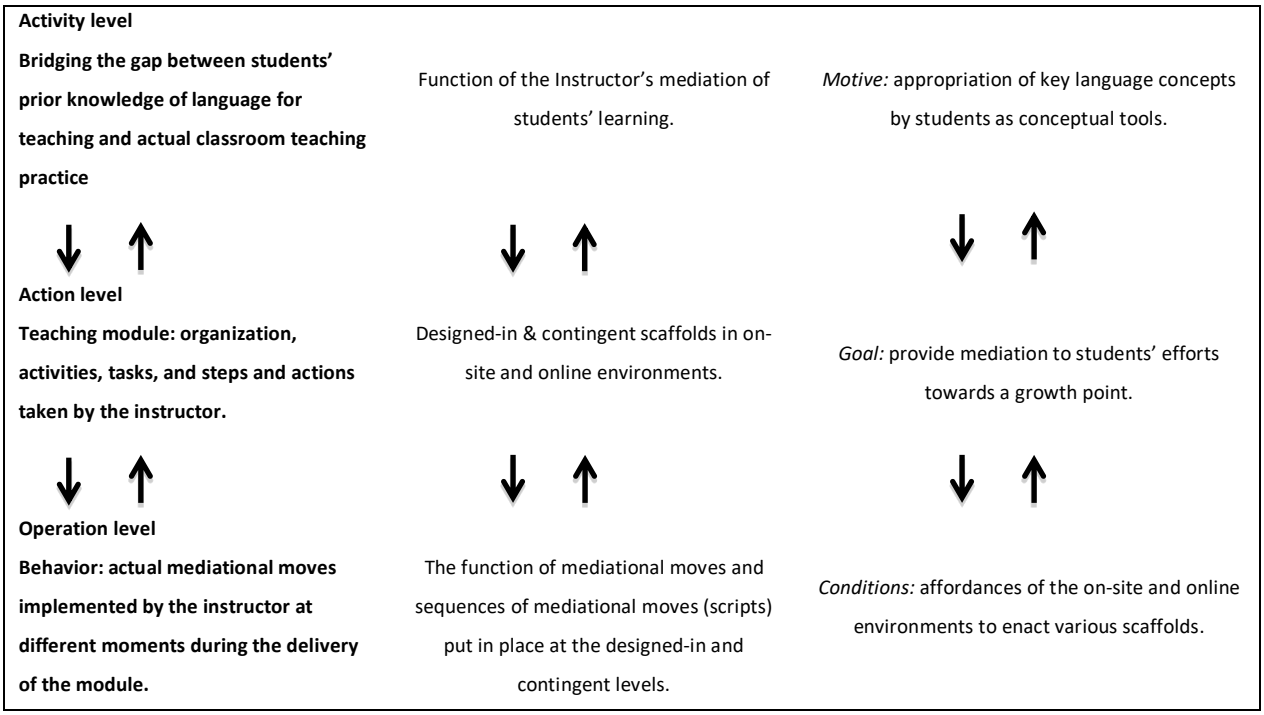

Figure 3. 2 – Examples of activities, actions and operations in this study (adapted from Hashim and Jones, 2007).

Engeström (2000) indicates that while object-oriented activity is durable, goal-oriented actions and operations are short-lived, even when contextually standardized or habitual scripts are enacted through actions. However, it should be noted that disturbances occur because the activity is in constant flow. Hence, these

disturbances make conscious attention evident imbuing the activity of a certain degree of intentionality.

3.4.2 – *Obuchenie*, *Perezhivanie* and the Intermental Development Zone.

The notion of disturbances presented here is akin to the construct of growth point discussed earlier specifically within the field of teacher education. Johnson and Golombek (2016) operationalize the construct by explaining how it is at growth points when a cognitive or emotional disturbance indicates to the teacher that mediation is no longer necessary. This is, in fact, an instance of the teacher learning about his or her own mediation. In the present enquiry, I have looked at how an organic MLE was enacted through dialogic interaction. This interaction was oriented towards an emerging growth point which prompted the instructor to phase out the support provided to students. During the process, mediational activity, mediational actions and mediational operations were intentionally set in motion as a response to students' emerging evidence of understanding of the various scientific concepts that constitute the curriculum. In a sense, it was the unpredictability of the growth point that provided fertile turf for the instructor to learn more about his or her own teaching, as well as about the learning of his students.

From the discussion above, it can be surmised that at the core of mediational activity lies the issue of conceptual change, a modification in the cognition of individuals that comes about as a result of engagement in an activity. Disturbances play an important role in this process since the contradictions encountered during the activity act as filters that help disclose participants' beliefs, as well as incongruities in any component of the activity. Once disturbances have been disclosed, they can be explored collectively, assimilated, adapted or discarded.

Johnson and Golombek (2016), in their conceptualization of growth point, also center on an aspect of Vygotsky's theory which has not been disseminated as strongly others. In characterizing the disturbances that might lead towards a growth point, they zero in on yet another dialectic, that of the interaction of the cognitive and the affective during the act of *obuchenie*. To Vygotsky, the cognitive is intricately

intertwined with the affective and, in the same way that there exists reciprocity in the teaching/learning dialectic, the affective and the cognitive influence each other. He used the word "*perezhivanie"* (Vygotsky, 1994, p. 342) to address this dialectic. Although *perezhivanie* has been a difficult term to translate and understand (see Clarà, 2016), in essence the term refers to the subjective meaning that individuals assign to an event in the environment. To Vygotsky, (1994, pp. 343–344) "The crux of the matter is that whatever the situation, its influence depends not only on the nature of the situation itself, but also on the extent of the child's understanding and awareness of the situation". In the context of this enquiry, attention was directed to understanding whether this construct was relevant to mediational activity and, if so, to which degree.

It should be noted that the subjective experience of an act of teaching may have a positive or negative effect on the learners' self-perception both as a learner and as an individual, and in cases where the *perezhivanie* is negative, it may stand in the way of cognitive modification, as the learner might reject the mediation (experience, mediating artifact, and/or mediator), thus not leading to the internalization of the concept or behavior. In this sense, the environment poses a fundamental affordance to the act of co-construction (Vygotsky, 1994, p. 342)

However, the emotional dimension is not enough unless it is aligned with the cognitive dimension. What is needed for both to act dialectically is a particular configuration of the teaching/learning dialectic, one where both instructor and students act together in pursuit of the motive of the activity. One relevant author, Mercer (2000), reminds us of the dialectical nature of Vygotsky's concept of *obuchenie* by emphasizing the mutually engaged nature of instructor-student interaction where the issue of *perezhivanie* gains renewed relevance. He suggests that when students and teachers are attuned to each other's efforts (i.e. when the *perezhivanie* during an instance of *obuchenie* is positive), an Intermental Development Zone (IDZ) is created and acts as an affordance for a "more dialogic, negotiated, an emergent view of the dynamics of conceptual development through

collective dialogue and engagement in joint activity" (Johnson and Golombek, 2016, p. 51).

Mercer (2000, p. 141) described the IDZ thus:

> For a teacher to teach and a learner to learn, they must use talk and joint activity to create a shared communicative space, an *'intermental development zone'* (IDZ) on the contextual foundations of their common knowledge and aims … If the quality of the zone is successfully maintained, the teacher can enable a learner to become able to operate just beyond his/her established capabilities, and to consolidate this experience as new ability and understandings. If the dialogue fails to keep minds mutually attuned, the IDZ collapses and scaffolded learning grinds to a halt.

In this light, the goal of mediational activity is to enhance students' learning. Learning is said to have occurred at growth points when students have appropriated new conceptual tools, which allow them to independently self-regulate their participation in a certain activity. For this to happen, spontaneous or every day concepts need to be elevated to the level of non-spontaneous, scientific concepts (Vygotsky, 1978) so that they become tools for thinking and acting within an activity system.

Vygotsky (1986) differentiated between spontaneous or everyday concepts which are the product of living in the world and engaging in joint practical activity with others, and non-spontaneous or scientific concepts.

Everyday concepts, because they are not introduced from within an organized system, nor are they introduced systematically, or explicitly connected to other concepts, develop from the bottom to the top as they are grounded in experience. Hence, one of the purposes of teaching should be for these spontaneous concepts to grow into non-spontaneous ones. This elevation has a correlative effect in that the use of those scientific concepts during activity transforms them, in turn, into every day concepts.

Non-spontaneous, or scientific, concepts originate in formal instruction and are explicitly introduced as a system of interrelated ideas, usually by a teacher, thus extending the meaning of everyday knowledge into new understandings of specific realms of activity. In this sense, because they progress from verbal explanation to concrete examples, scientific concepts are said to develop top to bottom. This other dialectic, that of spontaneous and scientific, also lies at the core of any mediational effort in that the elevation of every day concepts is at the heart of the instructor's mediational efforts. What is more, these concepts become both the tool and object of mediational activity, as, once appropriated by the students, they will allow them to function as language instructors. In this sense, the new scientific concepts will become the cognitive tools that will guide professional instructional practice.

The above depiction draws upon the core ideas about mediation, learning and activity discussed thus far. Participating in activity implies the exercise of agency. People have needs that can be fulfilled only by acting and interacting in and with the world. Thus, individuals can be characterized as object-oriented subjects that act in the world producing effects that change their environment while they, themselves, change as well. The notion of activity allows us to examine the many dialectical relationships referenced thus far which can be captured by systemically comprehending the multiple and nuanced interactions within an activity system like the one depicted in Figure 3.3:

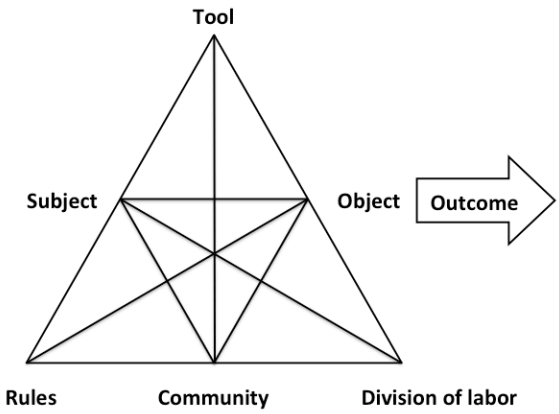

Figure 3. 3 – A graphic representation of an Activity Theory system (Engeström, 2000, p. 136).

The illustration above shows the interrelatedness of all components of the activity as a unit "of complex mediated social practices" (Kaptelenin and Nardi, 2006, pp. 99—100), and how they (may) interact with one another in a systemic fashion. When the activity is collective, then a context of community (Lave and Wenger, 1991) is created that accounts for elements such as the rules that bind the activity, how labor is distributed among participants, and what historical tools are used in the quest to attain the object or motivation for the activity.

The courses taught by Stephen, because they are part of a macro context which is systemic and hierarchical (the graduate program has an internal structure and courses are offered in pre-specified sequences), can be seen as a way of bridging the gap between the students' everyday understanding of language and the scientific understanding required of them in order to be able to perform effectively as teachers. Mediation in this context refers to those teacher-generated acts, both a priori and contingent, aimed at helping students grow their everyday concepts into scientific concepts to be made evident during their performance as language teachers.

3.5 – Summary of Chapter III

In this chapter I have summarized the main theoretical orientations that have guided this enquiry both at the time of formulating research questions as well as when making decisions about research methodology (as will be seen in Chapter IV). I have aligned the theoretical background with a Sociocultural perspective as it provides a useful explanatory background against which to position issues of mediation and knowledge co-construction which lie at the essence of the research questions posed.

Having substantiated the theoretical background that guided this enquiry it is time to introduce the research design that seeks to answer the research questions. To this avail, I will lay out the alignment between my ontological, epistemological

and methodological positions and substantiate the data gathering and analysis tools used in the context of the present enquiry.

In the next chapter, I will describe and substantiate a research design framework that responds to the ideas and motives in the present chapter. I will attempt to make explicit how my ontological, epistemological and methodological choices can contribute to better understanding mediational activity in online and on-site contexts.

CHAPTER IV – RESEARCH METHODOLOGY

4.1 – Introduction

In this chapter, I will substantiate my decisions regarding research design to address the two main research questions, while also detailing the focus and scope of the study in order to show how the study is aligned in terms of ontology, epistemology or methodology.

4.2 – A Qualitative Research paradigm

Locating research within a particular paradigm helped to align my ontological, epistemological and methodological positionings, which, in turn, helped me ascertain the trustworthiness and authenticity of the claims made here. In this section, I account for the aforementioned alignment in this research project.

4.2.1 – Definition and rationale. Because the emphasis of this study was on *understanding* how an expert instructor mediated student learning in on-site and online settings, it was circumscribed within a qualitative paradigm.

Denzin and Lincoln (1998) define qualitative research as:

> A set of interpretive practices [which] involves the studied use and collection of a variety of empirical materials – case study, personal experience, introspective, life story, interview, observational, historical, interactional, and visual texts – that describe routine and problematic moments and meanings in individual's lives (p. 3).

The authors characterize this paradigm as being multimodal in focus and involving an interpretive, naturalistic approach to the phenomenon being studied. In order to achieve this, qualitative researchers study phenomena in their natural

setting and attempt to make sense of them by *understanding* how people bring meaning to them. Other researchers have also highlighted these characteristics of qualitative research over time (Bryman, 2012; Glesne and Peshkin, 1992; Maxwell, 2013; McKay, 2006) so they may be said to constitute features of the paradigm and, as such, they need to be explicitly acknowledged throughout the research process.

McKay (2006) points out that qualitative researchers make no attempt to intervene in the typical activities of the participants and that they do not seek correlations between variables, but rather attempt to interpret what they observe in a particular setting. In general, few participants are selected (though multiple participants are also a possibility, for example, in ethnographic studies involving whole communities). In this research project the number of participants was decided on the inherent characteristics of the case in question (the outstanding professional performance of the participant) as well as on the choice of research tradition (Case Study). Working with one participant over the course of two full semesters and sustaining interaction through a semi-structured retrospective interview and a validation interview allowed me, the researcher, to engage with him for extended periods of time. Lastly, qualitative data analysis entails arriving at categories so as to fully understand, classify and summarize the data that were gathered for findings to be reported through rich description.

The reasons for framing this study within a qualitative paradigm stemmed from the very nature of the phenomena under study: highly situated individual narratives of instructional behaviors, which were the product of the cognitive, experiential and contextual histories of the participant. Because of this, and because the case centered around only one participant, units of analysis were not quantified or claims about them generalized. However, in the pursuit of trustworthiness and authenticity for this study, I designed a process that would involve multiple sources of data (e.g. document analysis, interviews, non-participant observation), gathered over two consecutive semesters, each lasting ten weeks, in order to enhance my understanding of the phenomena. Finally, I need to account for my own positioning in the research process. I identify with Glesne and Peshkin's observation that "In

terms of doing research, I knew that I was not at home in the world of numbers long before I realized that I was at home in the world of words" (1992, p. 2). The motivation for this particular research project was to look into the reality of an expert instructor and how he constructed that reality. More importantly, my goal as a researcher was to understand and interpret reality in the way in which the participant in context understood it, so that this interpretation, i.e. the outputs of this research, could later be opened to the scrutiny of others who would assess, from their own situated positionings, whether this particular case resonated with their reality so they could extrapolate from this case ideas and concepts which they might find useful. In this respect, a qualitative paradigm provided the necessary conditions for a rigorous exploration of the issues at stake, more than numerical data.

Finally, I took a social-constructivist perspective to research design and data analysis, as my aim was to understand how the instructor in a particular setting constructed his beliefs and views (Remler and Van Ryzin, 2011).

4.2.2 – Ontological, epistemological and axiological stances. Glesne and Peshkin (1992, p. 5) remind us that the research methods we use "say something about our views on what qualifies as valuable knowledge and our perspective on the nature of reality." Any study needs to make explicit how the researcher's conception of the nature of reality and the nature of knowledge affected the way research was designed and carried out.

At an ontological level, I adhere to the philosophical concept of *relativism* in which the underlying assumption is that since realities are constructed by individuals, there are as many realities as individuals inhabiting a socio-historical milieu (Bryman, 2012). In order for me to understand the participant's reality I needed to become a *re-searcher*, someone who looked at things again, albeit with the caveat that I was, in fact, directing the participant's attention to a reality of which he may not have been aware. In keeping with the relativist positioning I advocate for, I adopted a double hermeneutic approach where the participant was

the first one to interpret the data and I used these interpretations to, in turn, inform my own interpretation. My research design responded to these ontological assumptions by allowing for the presence of multiple sources of evidence and focusing on the participant's actual words and actions.

Because of this relativist positioning, I considered knowledge as a construction by the participant who imbued his actions of particular meanings stemming from his own experience, beliefs and views. In interacting with the participant, I adopted a reflexive positioning where I saw knowledge as "a reflection of the researcher's location in time and social space" (Bryman, 2012, p. 393). Hence, my interpretation was doubly subjective: it stemmed from the subjective views of the participant as well as from my own subjectivity. I have taken these epistemological assumptions into account in my research design by getting as close to the participant as possible, by sustaining my interaction with him over time and by reducing the "objective separateness" (Guba and Lincoln, 1988, p. 84) between researcher and participants.

Finally, this study was informed by my subjective positioning regarding the participant, his actions and thought processes. I need to admit to biases in this research that are the consequence of my presence in it. This was a constructed reality, one about which the participant may not necessarily have been aware of prior to my delimiting the research questions and selecting the case to study. Biases that have affected this study include my conceptions of teaching and learning, my choice of research method, the selection of mediational episodes stemming from the data, as well as the themes, codes and categories stemming from the analysis of those data. These biases could have impinged on my interpretation of the participant's interpretation of his own reality. That is why, in order to counteract this potential halo effect, I resorted to having all data and analyses validated by the participant.

4.2.3 – Methodological stances. In trying to understand how the expert instructor constructed his mediation of student learning in the different settings, I implemented an emic approach, which, according to LeCompte et al. (1999, p.10), seeks to "understand the meanings of people's lives as they themselves define them." In this sense, I purposefully avoided intervening or controlling the activity (McKay, 2006) of the participant opting out for "structuring" it (van Lier, 1988) via the selection of the research method, as well as by making clear my positioning and interaction with the participant through the choice of data gathering instruments and the analysis of the data.

4.2.3.1 – Researcher and participant's roles. My positioning in this study was that of an interested colleague who seeks to understand how an expert instructor enacted his mediation in different teaching environments. I considered the participant, his actions and his meaning-making systems as the primary sources of data. I aimed at making this study credible by prolonging my engagement in the field as much as was realistic and possible in order to be able to carry out persistent observations that would yield insights and potentially identify patterns into the instructor's actions. I also used various sources of data (observational accounts and transcripts, researcher's diaries, retrospective interview, document analysis, validation interviews) in order to promote the trustworthiness and credibility of my analysis. In a sense, as Rodriguez et al. (1999) claim, researches become the main research instrument. In this study, I became the main research instrument as it was through my decision-making that the phenomena were identified and explored.

Also, my actions in the field occurred in interaction with the participant *for* and *with* whom I acted as a "bricoleur" (Denzin and Lincoln, 1998, p. 4) by piecing together and reflecting on how our personal histories, biographies, gender, social class, race and ethnicity shaped that interaction. While interaction was ubiquitous and sustained, it was not intended to control or structure the participant's actions (though this fact cannot be fully ascertained given the very nature of our interaction). I understand interaction within a qualitative paradigm along the lines suggested by Angrosino and Mays de Pérez (2000, p. 683), who explain "Interaction

is always a tentative process that involves the continuous testing by all participants of the conceptions that they have of the roles of others."

The above-mentioned orientations to the delimitation of roles were used in order to access the participant's interpretations of his actions as well as to help uncover the thinking processes that underlie them. Finally, the participant was interviewed again after sharing my data with him (see 4.1.3). My purpose in doing so was to imbue the data with trustworthiness. According to Cho and Trent (2006), one way of doing so is to engage the participant in checking the data throughout the enquiry. Not that this is without problems. These authors cite Lincoln and Guba's concern that, by engaging the participant in checking the data, they are put in "an adversarial position" (Cho and Trent, 2006, p. 322), one where research and participant hold radically different views on the nature and worth of the research process and outcomes. This was not the case in the present study.

This potential constraint notwithstanding, I purposefully engaged in respondent validation in the quest to add credibility to the study. Efforts to involve the participant in validating the data and his interpretation are also advocated to by Wolcott (1990, cited in Cho and Trent, 2006) who encourages qualitative researchers to "record and write accurately, seek feedback, and report fully."

4.2.3.2 – Nature of the research design. The impetus for this study stemmed from a meta-analysis of the literature on scaffolding (see Chapter 3 and 4.3.3 below) and a concern with how experts mediate learning within a Sociocultural perspective. This initial impetus was followed by the design of this study in a way that would yield contextually relevant insights into effective mediation. In order to accomplish this goal, I gathered primary data by observing an effective, expert instructor (see 4.4) in action, through non-participant observation of his teaching on-site, analyzing the artefacts he used for teaching (PowerPoint presentations and anchor texts), and by analyzing transcripts of his Discussion Board (DB) interaction with students together with the feedback provided on course assignments within a Virtual Learning Environment (VLE). These data gathering tools allowed me to collect naturally

occurring data, which I coded using a previously-generated theoretical framework on mediation (see 3.3.3) as a first attempt to provide an analytic generalization (Yin, 2014) about the data gathered.

In order to ascertain the dependability of my elaboration of mediation so far, as well as to gather generated data, I engaged the participant in a semi-structured retrospective interview where I presented him with mediational episodes I had selected from those lessons or parts of lessons he had himself chosen to videotape (see section 3.3) for him to comment on. Participant engagement at this stage acted also as an auditing tool, as he was able to articulate whether he considered my selection of mediational episodes valid. The possibility for him to discard some of my selected episodes or select others from the data was also stated, though he agreed with my initial choice. Finally, data were analyzed and subjected to a second interview (this time using a semi-structured protocol) in order for him to check the accuracy of my analysis. In this sense, the procedures undertaken for the development of this case study are in line with those suggested by Cresswell (2013), who specifies, as steps for case study research: the identification of cases, extensive data collection using multiple methods, holistic and embedded analysis within cases and cross-case and reporting the meaning of the case (see Section 4.2).

The research process undertaken is summarized by Figure 4.1 on the next page. The boxes with solid lines chronologically organize the data gathering methods used, while the dotted lines do so for the analysis and interpretation of those data.

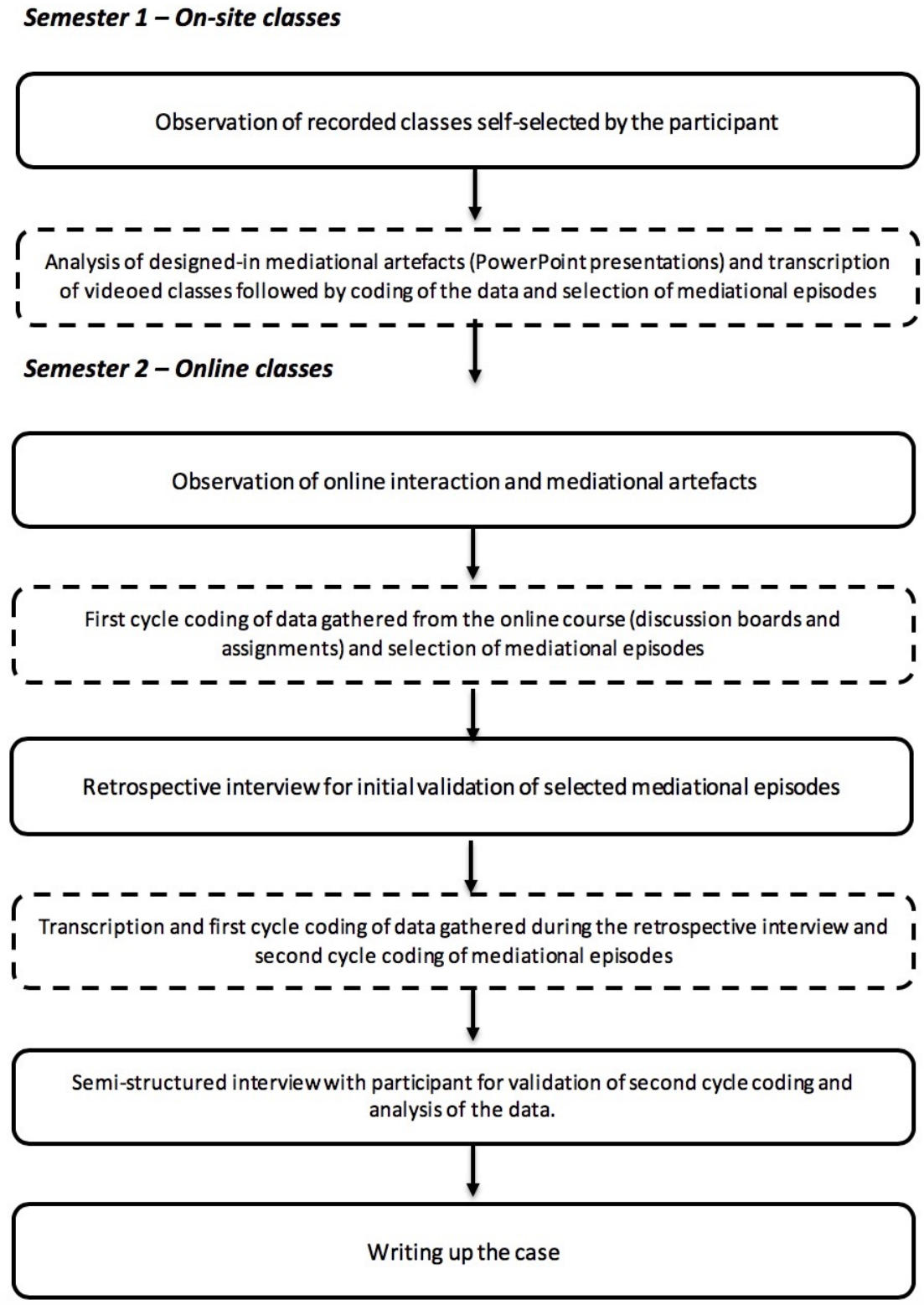

Figure 4. 1 – Summary diagram of the research process (Adapted from Borg, 1998).

As expressed before, I became the main data-gathering tool in this study by purposefully selecting the participant, context, and methods.

Additionally, in order to substantiate my claims, I used multiple sources of data collection that were sensitive to the context (non-participant observation and document analysis), interactive (retrospective interview) and flexible (semi-structured validation interview). At all times, the research agenda remained flexible to allow for emerging themes and issues. Flexibility was most strongly evidenced in the participant's ability to audit the selected mediational episodes during the retrospective interview, his response to the analysis of the discussion board interactions and feedback on assignments, as well as during the semi-structured validation interview. Likewise, flexibility was imbued into the design by selecting a tradition that would allow for the ongoing incorporation and reformulation of data: Case Study Research (Section 4.2).

4.2.3.3 – Nature of data analysis. In keeping with the interpretive perspective advocated for in this study, all data gathered were the object of "thick description" (Geertz, 1973, p. 312) for the purpose of promoting a resonance for readers in other contexts, since generalization of results is impossible, and even undesirable. Bryman (2012, p. 390) explains that using thick description in qualitative research "provides a database for others to make judgments about the possibility of transfers to other contexts."

Data were first analyzed deductively by reference to a theoretical framework (see 3.3.3) in order to identify instances of mediation and related themes (e.g. mediational moves). These themes were then subject to iterative coding processes from which analytic storylines (Saldaña, 2013) helped disclose categories of how mediation was actually enacted in the two settings, online and on-site. Analysis of the data, using the framework of Sociocultural Discourse Analysis within a CHAT perspective (as outlined in the previous chapter), led to the elaboration of potential interpretations stemming from each micro-context. In terms of data analysis, this

process seemed the most adequate given the intrinsic nature of the case (see Figure 4.1).

4.2.3.4 – Nature of outputs. Thick description of the case using the Sociocultural Discourse Analysis framework led to the identification of emergent themes and categories that were used in order to understand how the instructor in question enacted the constructs under examination in the classroom and in virtual environments. My aim in providing this analysis was to present both a holistic view of mediational moves in each teaching environment, as well as an analytic account of the affordances of those moves. In this respect, the outputs of this study are the product of an inductive approach to the analysis of the data from which understandings emerge and are shaped at all times by the researcher's experience in collecting and analyzing those data in interaction with the participant.

4.3 – Research tradition: Case study

Having established how this research project is aligned at an ontological, epistemological and methodological level, I will now turn to a consideration of how the research was designed.

4.3.1 – Definition and rationale. Given the ontological, epistemological, axiological and methodological positionings expressed above, I chose to conduct this study within the Case Study Research (CSR) tradition. Various authors (Bryman, 2012; McKay, 2006; Richards, 2011; Yin, 2014) concur that CSR is difficult to define given the many versions of this tradition and their multiple uses. Yin (2014) proposes a two-tiered definition of CSR that encompasses both its scope and its features. In terms of scope, he says:

> A CSR is an empirical study that investigates a contemporary phenomenon (the 'case') in depth within its real-world context, especially when the boundaries between the phenomenon and context may not be clearly evident (p. 16).

The concern with forms of effective mediation constitutes a contemporary phenomenon as reported in the literature review that informed the theoretical underpinnings of this study. CSR constituted a suitable research tradition in that my intent was to *understand* how mediation was enacted within the daily teaching contexts of the participant. However, observation of the participant's actions alone was not enough to account for the answers being sought. Hence, an in-depth analysis of how the different contexts contributed to the construct had the potential to add further clarity into how effective mediation operated in on-site and virtual settings. This is why the framework of CHAT (see Section 3.4) was chosen for data analysis.

Yin (2014) goes on to offer a second dimension to the definition of CSR by addressing its necessary features:

> Because phenomenon and context are not always clearly distinguishable, a CSR enquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needed to converge in a triangulation fashion, and as another result benefits from the prior development of theoretical positions to guide data collection and analysis (p. 17).

Again, CSR was a suitable tradition for the present study as categories of analysis and themes emerged from the interaction with the participant and were not decided *a priori*. Instead, the descriptive framework of CHAT helped give shape to the interpretation of the data. Additionally, understanding of the construct of mediation was sought using various data gathering tools and allowing for numerous voices (that of the participant, those of the theoreticians who informed this study, and my own) to emerge during the research process. These multiple sources of data and methods for their collection were intended to add rigor and trustworthiness to the study. Finally, the posing of the research questions and the decisions regarding the nature of the data needed and the means for their collection stemmed from my

prior engagement with a theoretical field that is almost a hundred years old and has thus benefited from sustained rigorous research efforts. This last issue is particularly relevant as the existence of various perspectives within the field allows for the accommodation of evolving understandings stemming from the data and the research process.

4.3.2 – Type. The type of CSR chosen for this study is what Richards (2011) defines as an *intrinsic case study*. The macro context is the postgraduate teacher education program where instruction is delivered both online and on-site. The primary unit of analysis is the expert instructor mediating the learning of his students in two ways: through his planning (designed-in mediation) and through his interaction with students (contingent mediation). He became the primary focus of interest because during our sustained professional interaction I perceived him to possess a level of expertise that set him apart from other faculty members in the program. This level of expertise was also confirmed in his students' assessment of his teaching, the institutional review of the program he worked for, and the evaluation of the administrators in the program. In this context, the primary unit of analysis offered two embedded units: *designed-in* and *contingent* mediational moves. Additionally, the primary and embedded units of analysis were also analyzed in terms of their micro contexts of occurrence: the online environment and the on-site environment. Although they are characteristic of much higher education activity, there were no blended learning sessions in the courses surveyed. Because of this, that dimension was not included in the study.

Figure 4.2, on the next page instantiates the design referred to above.

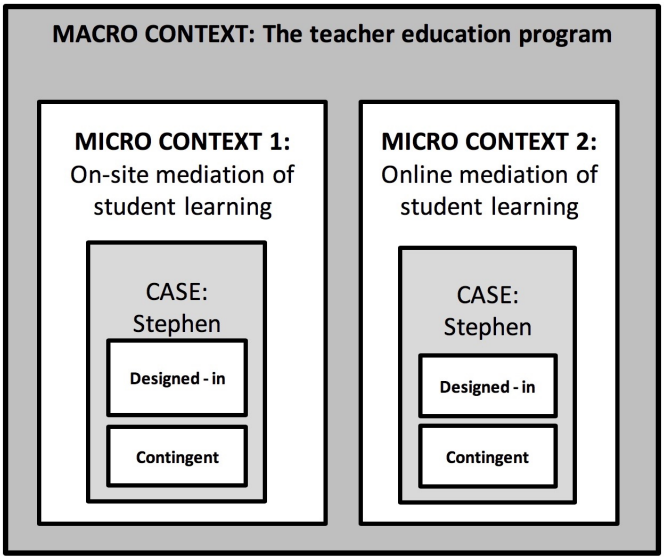

Figure 4. 2 – Research design followed (adapted from COSMOS corporation, cited in Yin, 2014, p. 5)

Yin (2014) notes that an adaptive design is preferable to a closed one in that, by allowing the possibility of redesign, we are avoiding potential threats to the trustworthiness of the study. Hence, alternative classifications should be sought. For example, Richards (2011) classifies cases according to their type. Consistent with his classification, the present study was an instance of a *descriptive* case where one issue (mediational moves) was explored through an in-depth analysis of the teaching activity of the participant. In order to add rigor to the design and analysis, I set as my aim "to deliver as complete a description as possible of the relevant phenomenon in its context" (Richards, 2011, p. 211). To this avail, I used an adaptive "replication logic" (Yin, 2014, p. 65) by which, during data analysis, I developed *a priori* criteria to keep the embedded units of analysis parallel. With that intent in mind, I sought to disclose themes, codes and categories from the data by using both *within-unit* and *cross-unit* analyses that would make evident various "assertions" (Cresswell, 2013, p, 101) or in-depth interpretations of the case.

4.3.3 – Ascertaining the alignment in this study. Edge and Richards (1998) call for qualitative researchers to clearly establish how ontology, epistemology, methodology and data analysis are aligned in order to establish a warrant for the outcomes of their work. They also discuss how the traditional notions of validity and

reliability are inconsistent with a qualitative research paradigm and suggest qualitative researchers should ask "which more fundamental concepts these terms relate to, developing a new set of terms for naturalistic enquiry which relate to the same underlying concepts" (Edge and Richards, 1998, p. 345).

I have attempted to imbue this study of "alternatives to validation" (Denzin and Lincoln, 1998, p. 2) by attending to Guba and Lincoln's (1994) constructs of ***trustworthiness*** and ***authenticity***, as reported by Bryman (2012).

Guba and Lincoln (1994) advocate for the use of trustworthiness and authenticity in qualitative research. ***Trustworthiness*** involves issues of *credibility* (equivalent to internal validity), *transferability* (not to be confused with generalization)*, dependability* and *confirmability*. *Credibility* has been established in this study by carefully aligning ontology, epistemology and methodology, by adhering to the canons of good practice in qualitative research, and also by seeking respondent validation (see 4.1.3). McKay (2006) considers that adhering to these canons means that researchers have prolonged engagement in the field, carried out sustained observation, used various sources of data and data gathering instruments, discussed with peers both the design and assumptions of the study, and finally, involved participants in checking my interpretations of the data. All these have been considered in this study. *Transferability* was ascertained by providing a rich description of the case as explained above and by safeguarding all versions of the data collected. *Dependability* was sought by undertaking ongoing auditing of the data and the methods for their collection both by myself and by the participant. Finally, *confirmability* has been ascertained by clearly recognizing the biases I brought to the research process, while acknowledging that complete objectivity is impossible and not even desirable, as the research explores a unique case.

In terms of the ***authenticity*** of this study I secured its *fairness* by fairly representing different viewpoints stemming from the participant. I consider the study possesses *ontological authenticity* in that it held the potential to help the participant and myself arrive at a better perspective of our social settings in making

explicit ways of doing teaching (on-site and online). By disclosing these ways of doing, I was also contributing *educative authenticity* to the study since through the process of disclosure and description we could better understand how individuals in specific social settings interacted. I also believe the study prompted the participant to engage in action to change or validate his circumstances, described as *catalytic authenticity*. Additionally, I consider that, by making the participant aware of how he mediated learning in the different milieu in which he acted, he may have been empowered to engage in transformative action, should it be needed. This adds an element of *tactical authenticity*.

Finally, it should be recognized that given that only one case was the focus of the enquiry, the study did not lend itself to generalization and transfer to large populations and similar contexts. However, it is my hope that it will provide relevant data and interpretations for "naturalistic" generalizations (Guba and Lincoln, 1988, p. 120) to be derived from the readers' weighing in the advantages and limitations of the study. In this respect, my claims should be seen as opposite ends of a continuum going from general (nomothetic) generalizations to more specific (ideographic) generalizations.

4.3.4 – Ethical considerations. All research is value-laden and affected by the biases of the researcher and the participants, as each creates and gives meaning to their own reality. Qualitative research is a particularly ethically sensitive paradigm where issues need to be acknowledged and brought out into the open as "The training and personal values of the researcher … form a component of the context of social research methods in that they may influence the research area, the research question, and the methods employed to investigate them" (Bryman, 2012, p. 7).

Hence, I have decided to adopt a position within this study in which I saw one of my main tasks as *working the hyphen*. According to Weis and Fine (2000, p. 33), the hyphen is the area "where self—other join in the politics of everyday life, the hyphen that both separates and merges personal identities with our inventions of others."

Even though preventive actions were taken to minimize the effect of my personal biases (see below), the fact that we are all historically situated social beings who construct our own realities meant that these preventive actions would never be sufficient. As a result, my task as designer of this study included making clear how ethical concerns were approached. In short, I developed a series of procedures that would ascertain that my research efforts were honest and that I was fulfilling my ethical duty as a researcher. These procedures are described below in the detailed narrative about the research project. I concur with Labov (in McKay, 2006, p. 24) that "An investigator who has obtained … data from members of a speech community has an obligation to use the knowledge based on those data for the benefit of the community."

I became aware of the contested field of mediation when I, myself, needed to question the impact of my teaching on my students' learning. What started as a staff room mentoring conversation with the participant slowly evolved into a research project oriented towards disclosing how he provided effective mediation of students' learning. This *sui generis* selection of a case to study bears with it the danger that I may be affecting the participant's own perception of his teaching self. In order to minimize this potentially negative effect, I developed a carefully thought out rationale for participant selection, which is explained in Section 4.4.

Initially, I undertook a meta-analysis of 32 journal articles on the topic of mediation in order to build a state-of-the-art database of understandings of this construct (see 3.3.3). This was shared with the participant who provided comments and suggestions in the writing of an academic article on the subject. I have to acknowledge that, on the one hand, this particular action may have biased both the participant and myself regarding our interaction during the research process. On the other hand, however, sharing this information helped establish a common language that led to the development of a shared understanding of what mediation entails.

I then invited this instructor to be the participant in this study. I developed an informed consent form (see Appendix A) where I clearly informed him and his

students of how the research would be conducted, and who would have access to the data collected and when. I verbally discussed with him the research design and the rationale for each of the methods selected. I emphasized that confidentiality would be kept both about the participant (by using a pseudonym) as well as the university and postgraduate program, even when, given the high profile of the university and the participant, complete anonymity could be problematic. Finally, I communicated my intention to have the participant audit and validate my interpretation of the data (see 4.1.3). Incidentally, since the participant's interaction with his students would be monitored, informed consent was also required from the students at the beginning of each term. However, they were informed that they would not be the object of the enquiry and that the same conditions of anonymity would apply to them were their words used in the data analysis and reporting (for example, by using pseudonyms for their names).

Additionally, I implemented the following procedures to address further ethical issues. I made sure of the following:

- The participant was an adult.
- The participant was provided with a detailed information sheet describing the project in advance of his decision to participate.

Upon his agreement to participate, he completed an Informed Consent Form (See Appendix A). In that instrument it was clearly stated that:

- participation in the study would be entirely voluntary and the participant could leave the study at any point he desired.
- all data collected would be de-identified through a coding process with only the researcher having access to the codes.
- data would be kept securely stored in an external hard drive protected by a secure password and kept under lock and key for a maximum of five years after which the participant would decide to have the data returned to him or destroyed.

- Finally, no data that might identify the participant would be included in any report or other publicly available texts published as a result of the study.

In terms of power issues between the researcher and the participant, there are no significant ones. If any, the prestige of the participant could be seen as having an influence on me, who did not have the same professional status as him. Mindful that this might lead to writing a hagiography, I carefully aligned the research findings with the theoretical background that informed the study before submitting the data and my interpretations of them to the scrutiny of the participant.

Lastly, it should be emphasized that researcher bias can also be found in terms of selection of the object of study and the development of the research process. When making decisions about these two constructs, I made sure to consistently audit my own lived experience, as well as how the participant's conceptions of teaching, learning and the interactions in those activities were aligned with the theoretical framework made explicit in Chapter III. Hence, by adopting a Sociocultural perspective to understanding teaching and learning, I was excluding other possible theories. This was done for consistency with the ontological, epistemological and axiological stances made explicit above and was the consequence of both, my professional experience and training, as well as my values. As Bryman (2012, p. 7) explains, "social researchers, as a result of their training and sometimes from personal preferences that build up, frequently develop attachments to, or at least preferences for, certain research methods and approaches."

4.4 – Method

Having described the context for the study, we now turn to a consideration of the methods used.

4.4.1 – Definition and characteristics. The methods for this study were selected bearing in mind the ontological and epistemological positionings outlined

above. Given the qualitative nature of the design, data were primarily non-numerical (words) and lent themselves to analysis in order to infer trends, themes and categories. Likewise, in keeping with the relativist philosophy espoused, a multi-method approach was selected in order to gather rich and varied data from various sources that would allow a rich description of the case in point.

4.4.2 – Methods for data collection. In order to achieve the goals of this study, and in line with its constructivist and interpretive orientation, the participant's meaning making was facilitated by implementing a series of data collection methods that would allow him to make sense of the experiences I had identified as foci for analysis. Table 4.1 describes the methods selected in the order in which they were applied, together with the purpose for their use, the participants involved, and the time frame during which they were implemented.

A distinction is made between naturally occurring data and generated data in order to indicate the double hermeneutical cycles I engaged in. Attention is also paid to instances of participant's validation of the data.

Table 4. 1 – Methods used in this enquiry

Method	People involved	When used	Duration	Purpose
Non-participant observation via video recordings	Researcher Participant Students	August – December Year 1	20 hours (10 two-hour recording sessions)	Gather naturally occurring data.
Analysis of discussion board postings in the LMS	Researcher Participant Students	January – May Year 2	10 Discussion Board transcripts.	Gather naturally occurring data.
Analysis of the designed-in mediational	Researcher Participant	August – December Year 1 January – May Year 2	10 PowerPoint presentations used during	Access the designed-in intentions of the participant.

Method	People involved	When used	Duration	Purpose
artefacts (anchor texts)			online and on-site classes	
Analysis of feedback provided for online assignments	Researcher Participant Students	January – May Year 2	10 random assignments by 10 random students plus analysis of 1 key assignment.	Gather naturally occurring data.
Retrospective interview	Researcher Participant	June Year 2	90-minute interview	Gathering generated data. Auditing researcher's claims. Initial respondent validation.
Semi-structured interview	Researcher Participant	October Year 2	30-45 minutes.	Respondent validation and data auditing.

As can be seen from Table 4.1, four different methods of data collection were used (non-participant observation, document analysis, retrospective interview, and semi-structured validation interview). These methods were selected taking into consideration that they would yield contextualized data directly from the participant. Since there was variety in the methods used, data became richer as the participant engaged in auditing and validating them. Each of the methods is described in detail below.

4.4.2.1 – Non-participant observation. The participant was given a camera that he placed in the classroom at the start of each lesson. Sometimes he recorded the entire lesson in an uninterrupted way. At other times, he stopped recording when students were engaged in collaborative work or chose to focus on particular mediational episodes. The purpose of using a camera without my physical presence was to add flexibility to the participant as well as not to structure or control the observation (van Lier, 1988), as even when performing a non-participatory role, my

presence in the classroom could potentially affect the way instructors and students behave (Remler and Van Ryzin, 2011). However, we cannot rule out the fact that knowing that the class was being recorded and used in research might also have had an effect on them. Additionally, the selection of what to record by the participant was a first interpretation of his understanding of mediation, which provided the first hermeneutical cycle, followed by a second selection and interpretation of these episodes by me.

Borg (2006) outlines various dimensions of observational research that constitute a continuum which can act as a useful heuristic at the time of gauging the suitability of observation as a data gathering tool in qualitative research. Although he is writing strictly from the perspective of a researcher on teacher cognition, he summarizes the main features of observation within the social sciences. He notes that observational data provide "direct evidence of behavior, is (in theory) non-interventionist and allows large amounts of descriptive data to be collected" (p. 227).

Finally, non-participant observation was chosen as a data gathering method, as the aim was not to explain causal relationships but to access a description of how the participant enacted mediation in his natural setting. It should be noted that the decision to videotape and observe (through monitoring discussion board interactions) almost half of the total class time in each course was due to the fact that, as Borg (2006, p. 246) suggests, observational data need to be collected over time so that it may be more trustworthy. In this sense, having a camera and not the researcher present was intended to minimize these reactive behaviors once the camera became one more element in the classroom. Of course, this may also have biased the data collected, as the participant may have been over-selective of the instances of teaching he recorded. Table 4.2 specifies the dimensions of the observational component of the present study.

Table 4. 2 – Dimensions of observational research in the present study

Dimension	Description
Participation	I was a non-participant in that I was not present in the classroom. This helped minimize the observer's effect on those observed.
Awareness	The participant and his students were *overtly* aware that they were being filmed. However, the participant had full control over what he wanted the researcher to see as he could switch the camera on or off at will. Incidentally, the participant chose to record most sessions in full, and only stopped when students were doing tasks individually.
Authenticity	The settings were naturally occurring, as what was observed was real, typical interaction between the participant and his students.
Disclosure	I made a point of being very explicit about the purposes of the observation and discussed them with the participant, and also included them in the informed consent form.
Recording	Two kinds of recording were implemented. First, the video recording of the actual lessons. Second, a transcription of the recordings. This transcription was done by watching the videos, writing the exact words used, including hesitations and false starts and also noting non-verbal behavior that accompanied discourse, when relevant (e.g. banging on a desk while repeating key words in order to emphasize a point). In short, the recording was both technological and manual.
Structure	Data were recorded in an open way as no predetermined analytical categories were given to the participant.
Coding	This category refers to "the extent to which data are coded according to existing frameworks" (Borg, 2006, p. 230). Given that such a framework existed, the coding was deductive.
Analysis	Data were analyzed in a qualitative way by segmenting the mediational episodes and disclosing inherent themes using Sociocultural Discourse Analysis.
Scope	The participant was observed during 10 two-hour sessions over the course of a full semester. His interactions with students on the Discussion Boards were monitored for a further full semester. Hence, it can be said that this was an extended scope observation. A retrospective interview was carried out immediately after the two semesters had finished. A validation interview was carried out once data were coded and themes systematized.

4.4.2.2 – Document Analysis. The participant built his courses using PowerPoint as a mediational tool. Each session consisted of exactly the same number of slides containing anchor texts and activities around those texts (see 3.3.2 and also 5.1). He used those anchor texts in both the on-site and online environments with minimal variations, which will be seen in the next chapter when these are analyzed and coded.

When teaching online, the participant made extensive use of the Discussion Board (DB) function of the LMS in order to mediate students' learning. He also required a summative assignment at the end of each unit, which he responded to,

thus providing additional mediation. These assignments were included because Stephen has a rule by which students are able to resubmit the key performance end-of-module assignment. I looked at the feedback he provided on the first draft of these assignments as these comments were intended to scaffold the rewriting of the task for its second, and final, submission.

Specifically, on the DBs, he provided feedback on students' work both via private messages and through responses to their postings within the public forum students used for the discussion. I selected the DB and assignments where the participant was teaching the same contents as in the on-site lessons for consistency purposes. DB interactions were analyzed using the same framework for categorizing an MLE as the one used to analyze mediational episodes on the videotaped on-site lessons (see 4.3.3 below).

In order to examine the interactions and the text on the DB and assignments, as well as in analyzing the recorded lessons, Sociocultural Discourse Analysis (SDA) was implemented (Littleton and Mercer, 2013; Mercer, 2004). This approach allows the researcher to constantly revise the themes and categories that are deemed relevant from the analysis of the documents. In this sense, there are no predetermined categories applied to the sources. Instead, SDA starts with initial categorizations that are refined through iterative approaches to the data, from which new categories can emerge. I looked at the linguistic function of the interchange between instructor and students and built an outline of the purposes of the interaction, and their potential result from those. The process for document analysis entailed familiarization with the context (I read the whole texts of both the designed-in and the contingent mediational episodes), use of the theoretical framework on mediation to sieve a manageable number of mediational episodes, the generation of new categories and development of a schedule centered around the function of the exchanges, and the application of the schedule to all mediational episodes so as to identify growth points (see 3.3.3).

In order to identify and select what were considered mediational episodes, I transcribed the videos and analyzed the interactions between the participant and his students using a theoretical framework (see 3.3.3) that characterizes MLEs, whether designed-in or contingent. All mediational episodes that evidenced these patterns were selected. In the case of the DB postings and the feedback on assignments, the anchor texts and instructions for each DB task, as well as the instructions for the assignments, constituted the designed-in mediational effort, whereas the students' responses and the reactions of the instructor constituted his contingent mediational efforts. A total of 10 mediational episodes, representative of the range of mediational moves the instructor made, were selected to include both online and on-site examples. Additionally, 10 assignments were randomly selected for analysis and finally, one key assignment together with the feedback provided to all students in the class were incorporated. These provided sufficient data regarding the range of mediational moves and constituted input for the retrospective interview.

4.4.2.3 – Retrospective interview. This was an instance of introspective research (McKay, 2006), and was instrumental in bringing about the participant's own narratives of how he mediated student learning. These narratives helped disclose the thought processes that may explain the participant's actions. As McKay (2006, p. 60) indicates, introspective research methods are "One of the few available means [to find out more about the cognitive processes of teachers," I have to concede to the potentially inherent limitations of this research instrument. One of these limitations is that the interview was based on subjective data that depended entirely on the ability of the participant to recall the thinking process that he was undergoing at a certain point in time. Additionally, as McKay (2006, p. 68) suggests, "one can question the extent to which individuals can analyze all of the processes involved in their own […] learning and teaching experiences."

Notwithstanding these points, the purpose for using this type of interview was to better understand the participant's *reported* behavior (i.e. an instance of generated data). The interview was carried out with the participant after both the

on-site and online courses were finished. It took place in a private office, during the participant's free time, and consisted of watching and reading the mediational episodes selected (both on video and in writing) by me and inviting the participant to comment on them. It should be noted here that the first selection of mediational episodes was done by the participant himself, as he chose which classes to video record and, from these classes, the moments where he considered he was mediating students' understanding. From that pool of episodes, I selected those which most readily complied with the criteria for MLE explained in the previous chapter.

The participant was encouraged to reflect as to how characteristic of his teaching these were, and also to select any mediational episodes that I had not identified. With this, I was seeking participant validation for my generated data (the mediational episodes selected by me) and allowing the participant to audit them at the same time, both generated and naturally occurring. Initially, the participant contributed one extra mediational episode from the videos which, when analyzed in detail together with me, resulted in the same type of mediation as other two mediational episodes visualized during the interview. Nevertheless, this contribution was duly noted and the interaction transcribed and incorporated into the case study database.

Lastly, it should be highlighted that participant validation of the data emerging from these interviews also helped ascertain inter-observer (the participant and myself) consistency pertaining to the initial analysis of both the videos and the discussion board postings. Sanchez (2010) provides an adaptation of the classification of introspection research by Faerch and Kasper (1987, cited by Gass and Mackey, 2000) that I will use in order to summarize the contributions of the retrospective interview in the present study. The following table summarizes these contributions:

Table 4. 3 – Features of retrospective interviewing in the present study

Category	In the present study
Object of introspection	Episodes of mediation by the instructor during teaching. Designed-in mediation. Contingent mediation.
Modality	The data introspected were oral.
Relationship to concrete action	Introspection was related to actual classroom events stemming from either the selected videotaped mediational episodes, or those identified in the DB interactions between participant and his students.
Temporal relation to action	The participant was observed on-site and online during the course of two different semesters. The retrospective interview session happened two months after the last observation. The session took place in person and was audio recorded for further analysis.
Participant training	No training was needed. However, since the participant had not previously participated in a retrospective interview, instructions were given at the start of the session (see Appendix C).
Stimulus for introspection	Selected videotaped mediational episodes. Verbatim transcript of the videotaped mediational episodes. Selected transcripts of DB interactions. Selected instructor feedback from course assignments. The participant made ongoing reference to students' remarks and answers in order to support his comments about the recall support.
Elicitation procedure	I asked four guiding questions in order to elicit as much information from the participant as possible: • What is going on in this episode? • What do you see/hear that makes you say that? • What else can we learn about mediation from this episode? • Would you consider this a mediational episode? Why? Why not? Even though these were guiding questions, the interview can be said to be semi-structured as the participant was allowed to divert from these questions if needed. The participant's input was also requested at the end of the interview when he was asked to identify other mediational episodes.

4.4.2.4 – Semi-structured validation interview. Once data were thematized, coded and categorized, a semi-structured validation interview was carried out with the participant. This interview consisted of me discussing the participant's case with him and outlining the holistic and analytic interpretations that stemmed from it. This interview was also recorded and transcribed, as its purpose was to have the participant once again audit and validate my claims (see Appendix F for the interview schedule).

4.4.3 – Selection of mediational episodes. Prior to engaging in this research project, I performed a meta-analysis of 32 journal articles and book chapters that dealt with the theory of mediated learning (see 3.3.3). In order to secure breadth, as well as depth, a variety of peer-refereed, high impact journals as well as books by well-known experts on the subject were consulted that dealt with mediation and the MLE. The materials came from such disparate areas as: nursing, education, psychology, computational linguistics, technology-mediated instruction, anthropology, and sociology. Books consulted covered aspects of instrumental enrichment, general learning theory, psychology, applied linguistics, subject-matter teaching, interaction design, activity in virtual spaces, and literacy instruction.

From the meta-analysis, a framework for the categorization of mediated learning emerged that was the focus of a reading paper submitted as part of this Doctoral program. This paper obtained a grade of Distinction after having been graded by two lecturers in the program, which was then confirmed by the Board of Examiners. Finally, a version of the paper was submitted to a peer-refereed journal (*Encounters/Encontres/Encuentros on Education*), that accepted it for publication. While it can be said that the academic grade and the peer validation of the framework make it suitable as a research instrument, in order to add another dimension to this validation process, the framework was shared with colleagues in the department for their comment. They all concurred that the criteria used to assess mediated learning experiences were both sufficient as well as comprehensive. The framework was explained in detail in 3.3.

4.5 – Participant

4.5.1 – Selection of the case. In order to add trustworthiness to the study, the participant that informed it was purposefully selected so that the same analysis of his engagement in teaching online and on-site could be observed. For this reason, a set of criteria was developed that guided selection and ascertained consistency. Through my interaction with the participant, prior to engaging in research, it soon became evident that he complied with all the criteria, thus making him an ideal participant for the project. The criteria allowed enough depth of characterization without risking the anonymity of the participant. What follows is an explicitation of the criteria and how the participant met them.

Expert status: The instructor is considered an expert in the field of second language teacher education (SLTE) because of his extensive record of teaching, research, publication and dissemination of his research. This instructor has been extensively referenced in the professional literature (e.g. for example, he has more than 300 citations in Google scholar) and has occupied positions of leadership in the field. These are two important facts which attest to the expert status, afforded him by his peers and the profession in general.

Bereiter and Scardamalia (1993) rightly indicate that it is more difficult to identify expertise in teaching than in other areas of human activity given the highly situated nature of the act of teaching and the many knowledge domains which are at play in it. However, there have been numerous attempts at characterizing expertise in teaching (Calderhead, 1996; Copeland et al., 1994; Turner-Bisset, 2001). Early attempts at this characterization derived from the field of cognitive psychology and considered expertise as a permanent state where performance at high levels became automatic. In contrast, and specifically addressing the field of English Language Teaching (ELT), Tsui (2005) sees expertise as a process which mediates and supports expert performance. Some characteristics of this process entail undergoing a process of rigorous training, engaging in constant reflection on teaching activity, and setting progressively higher goals aimed at extending current levels of performance. She

references Ericsson (2002), who depicts expert performance as "continued improvement with increased experience and deliberative practice. Ericsson points out that is precisely the resistance to automaticity that distinguishes the expert from the non-expert" (Tsui, 2005, p. 184). The participant can be considered an expert in this light because of the following factors:

Education: the instructor started in the profession as an English language teacher by obtaining initial certification and, after some years of practice, moving on to postgraduate studies in applied linguistics. He has engaged in sustained ongoing professional development by attending conferences, developing innovative courses, and pursuing and publishing research. These facts attest to the rigor of his training.

Reported effectiveness in teaching: The instructor scored systematically above 4.5/5 in student evaluations over the course of 7 semesters. He was also ranked as 'Outstanding' in the evaluations of three different Department Chairs over the past 7 years and received a Distinguished Teaching Award once. Additionally, he serves in specialist university-wide committees that require his expertise, thus engaging in ongoing reflection in and on teaching.

Teaching engagement: the participant teaches his course both online and on-site. Moreover, he was among the first faculty members in the department to design and deliver his courses entirely online, as cited in the program review document, and has been doing so for the past eight years. He has also acted as mentor for new part-time online faculty and has taught programs on how to design online courses. Launching online curricula was certainly a challenge, which the participant faced by proactively engaging in goal setting and achievement in novel environments.

Epistemological coherence – the participant reported he adhered to a view of teacher education as a process involving experiential learning, reflective practice and active participation in professional communities of practice. These are expected to allow teacher trainees to co-construct their own professional knowledge base and identity. In this sense, his epistemology of teacher education seems to be aligned

with the ontological and epistemological tenets of this study. A Sociocultural stance rejects the concept of automaticity for the notion of internalization or, as explained before, a move from the inter-psychological state to an intra-psychological state characterized by high levels of reflection and rigor.

The criteria also took into consideration my own positioning in relation to teaching and learning. I, too, adhere to the same view of teacher education as the participant and have been identified as an effective instructor in both online and on-site settings. Like the participant, I also started in the field by obtaining initial teaching certification and, as I completed my postgraduate studied, progressively moved from teaching the language to teaching teachers. In this sense, I consider that such a positioning added an element of educative authenticity to my involvement in the field, as I am able to empathize with the participant and better appreciate the perspectives that he brings to the task of teaching. Cohen et al. (2000, p. 137) state that "…behaviour, and thereby, data are socially situated, context-related, context-dependent and context-rich. To understand a situation that researchers need to understand the context because situations affect behavior and perspectives and vice-versa." In this sense, I consider that my positioning in the same context as the participant adds an element of credibility to the claims I make.

4.5.2. – Background to the participant: Stephen. Stephen is an L1 English speaker. He started teaching in an English-speaking country after he took an initial teacher certification program. Soon after, he moved to a non-English speaking country where he taught for over 10 years. It was at this stage when he first became a teacher trainer to the faculty in the institution where he was working, after being promoted to Director of Studies. Following this, he moved to an English-speaking country again in order to undertake his postgraduate studies. What prompted him to return to school was the fact that he had been offered the position of teacher trainer, for which he had had no preparation. Stephen started writing professional reference books for mainstream publishers in the early 1990s and has continued to do so until the present day. He has contributed over 30 academic articles, two textbook series, over 15 chapters in edited volumes and more than 20 professional

reference books. He is also a frequent keynote speaker in ELT-related local and international events, as well as an articulate media user who informs his practice and research through online applications and other social media. He started teaching in the postgraduate program where this research project was conducted as an adjunct in 2007 and became full time faculty in 2011. He has taught 5 courses a year both on-site and online.

4.6 – Data analysis

The process of data analysis was guided by the need to provide a "thick description" (Geertz, 1973, p. 312) of the particular case, as well as comparing the embedded units of analysis. In keeping with the interpretive, constructive perspective advocated for in this project, and in order to sustain the ontological, epistemological and methodological alignment, Mercer's (2004) Sociocultural Discourse Analysis (SDA) was chosen as the method for data analysis. Given that the purpose of this research project seeks to understand the relationship between teacher educator/teacher learner interaction as it applies to teaching language teachers, a methodology that explored the nature of classroom discourse and its educational value in co-constructing knowledge was needed. Littleton and Mercer (2013) developed SDA so as to focus on "how language is used as a social mode of thinking—language as a tool for teaching-and-learning [the Vygotskyan dialectic concept of *obuchenie* referred to before], constructing knowledge, creating ideas, sharing understanding and tackling problems collaboratively" (p. 13).

Mercer (2000) observes that SDA is different from other forms of discourse analysis common in qualitative research in that it is less focused on the language itself and more on the *functions* to which language is put to use. In this sense, given the assumption that "utterances have more than one possible functional meaning" (p. 141), engaging in a qualitative analysis of the data allows for categories to be generated through the analysis, rather than being imposed on the data *a priori*. Because of this, in SDA categories for analysis are outcomes instead of prior assumptions.

Mercer (2000, p. 142) indicates that:

> A positive feature of this kind of approach for analysing talk as collective thinking is that the actual talk remains the data throughout the analysis and so the processes of the joint construction of knowledge can be examined in detail.

The first step in analyzing qualitative data using the SCDA framework is to build a corpus with the data and identify recurring patterns. Once identified, those patterns are subjected to a qualitative analysis in order to disclose their function.

In SDA data sets are generally small and, because of this, researchers may be charged with selecting specific examples of data to make their case. Mercer (2000) explains that in order to counteract this perceived methodological limitation, a combination of interpretive methods and computer-based text analysis should be used.

By using a concordances program (i.e. a computer program that identifies the frequency of words within a text or a databank of texts and which also lists these words in the context in which they appear), researchers can undertake a qualitative analysis of the talk (with a focus on the relationships between particular interactions) as well as a quantitative analysis (by identifying key words or concepts in the data as a whole, as well as in data sub sets). The advantage of this dual approach to data analysis is that "the basic data remains throughout the whole process" (Mercer, 2004, p. 142).

In order to undertake data analysis, a corpus of all verbal data was created and subjected to a search using the concordance program in order to disclose the most frequently occurring words. The results of this concordance search were disappointing as no naturally occurring patterns could be identified. In this sense, the quantitative element was lacking, thus making it difficult to undertake the qualitative element (i.e. the concordances program should have allowed me to see each of the

words in its context, but having no key words, this analysis was futile as no patterns could be discerned).

In order to remedy this situation, data were first subjected to manual coding identifying the format of the mediational episode and, in a second coding cycle, the function that utterances by the participant served within each mediational episode was identified. Thus, the corpus was reconfigured to allow the identification of functional (more than merely lexical) patterns.

Data were initially coded using the model developed by Saldaña (2013), who specifies that a code "is a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (p. 3). This author suggests a First and a Second Cycle of coding during which, through processes of encoding (reflecting to decipher meaning) and decoding (determining the appropriate code and label), data can be interpreted. Once coded, data can be grouped into families from which categories may arise. Throughout the process, attention was paid to opportunities for re-coding and re-categorizing as "Qualitative enquiry demands meticulous attention to language and deep reflection on the emergent patterns and meanings of human experience" (Saldaña 2013, p. 10).

The process entailed comparing data to data, data to code, code-to-code, code to category, category to category, and category back to data through two iterative cycles. During First cycle coding I used two individual coding methods to analyze the data. First, I used *structural coding* by assigning to a segment of the data a conceptual phrase, couched in the form of a language macro function. This refers to the main purpose the data segment fulfilled in terms of designed-in and/or contingent scaffolding. Hence, macro functions such as "Activating students' background knowledge" or "Checking understanding" were identified. I next used *descriptive* coding by assigning a descriptive word to different sections of the data, finely tuning the specific function each exchange evidenced.

During the Second coding cycle data were reorganized for qualitative analysis through the disclosure of patterns that would concretize the various categories stemming from the data to be matched to theoretical constructs. To this avail I used *pattern* coding ("explanatory or inferential codes … that identify an emergent theme, configuration or explanation" Saldaña, 2013, p. 210) in order to examine networks and patterns of participant behavior so as to form theoretical constructs (disclosing actions and scripts in the mediational episodes). Here the analysis went from the most frequent format and function of the mediational move to the least, with each identified function analyzed in the context in which it occurred so as to provide a description of how talk was used in mediating students' understanding via contingent scaffolding. In other words, once the functions were contextualized, an understanding of how the participant's actions and operations resulted in useful mediation emerged from the data. Again, see appendix D for a sample of this.

Through these two iterative cycles themes, formats and functions emerged that allowed me to create a descriptive schedule of scaffolding moves exclusively suited to the moves observed in this case. Though some of the terminology may be similar to that proposed by Hammond and Gibbons (2005) and Walqui (2006), the categories I came up with were intended to reflect my understanding of the data. The overlaps happened mostly with polysemic terms (for example, "recasting") or well-known professional concepts for which it made no sense to coin new terms (for example, "activating background knowledge").

Initially, during the design of the research methodology, it was considered that avoiding an overlap with the aforementioned categories when coding the data may prove unsuccessful and eventually a mixture of both typologies would be used. This would have been counterintuitive to the research design and its theoretical alignment as superimposing categories on data *a priori* would have rendered the analysis not constructivist but correlational, thus destroying the ontology – epistemology – methodology alignment.

Furthermore, it soon became evident, particularly during the second coding cycle, that the scaffolding categories suggested by the authors above posed severe limitations at the moment of analyzing the data. The categories provided appeared rigid and limiting, particularly when analyzing interactive teaching on-site and online. Since the contingent moves Stephen implemented were highly interactive, reducing them to a single category resulted in incomplete appreciations of the potential for scaffolding of those moves.

The categories might somehow have worked to describe the format of the interaction (see 5.3) and even then, there were moments when no category suited the data being analyzed. To me, the categories proposed above fail to respond to the complexity of the act of scaffolding in that, by abstracting them from the concrete context of interaction, they lose their intentional nature that should characterize any organic scaffolding move. In that sense, the characterization of the scaffolding move became unidirectional, thus losing its mediational quality. Because of that, the decision was made to focus on the format of scaffolding (the action level of the activity) and then on the function (the operational level) and create codes that captured the intentionality of the dynamics of the interaction for this particular case, always mindful that language may adopt different functions depending on the context. This was yet another reason not to use those categories.

4.7 – Summary of Chapter IV

In this chapter I have discussed the philosophical assumptions that underpin my research design and exemplified how they have been sustained throughout the research process. I have provided examples of how my ontological, epistemological and methodological positionings were aligned. I have also substantiated the selection of data gathering methods used and provided evidence of their alignment towards answering the research questions. In the process, I have also made explicit the orientation to data analysis that I took by describing the frameworks used.

In short, I approached the design of this study from a relativist ontological positioning so that the findings would be constructed through my interaction with the participant. To analyze the data gathered a framework oriented at understanding the function of utterances (more than their frequency) as they are used in social interaction was selected.

In the next chapter I will describe the research findings.

CHAPTER V – DESCRIPTION OF RESEARCH FINDINGS

5.1. – Introduction

The research findings are organized according to the two main themes that emerged from the research questions posed and which were derived from the data collected. Table 5.1 summarizes the main structure of the chapter as it relates to the research questions posed. For each of the questions, two main themes were developed: the designed-in mediation and the contingent mediational moves during teaching.

Table 5. 1– Location of answers to research questions

Research questions	Theme	Section(s)
RQ#1: How does an expert instructor enact the mediation of his students' learning efforts in on-site and online environments?	Designed-in mediation	5.2; 5.3
	Contingent mediation	5.4
RQ#2: What affordances for instructor mediation did each environment provide?	Designed-in mediation	5.5
	Contingent mediation	5.5

For the description of the data, the following conventions have been used to locate the data provided by the participant within the case database: meditational episode (**ME** to include verbatim transcription of online or on-site episodes where the participant scaffolded students' learning); retrospective interview (**RI** to indicate data derived from the retrospective interview used for initial validation by the participant of the research findings; the timing of each of the verbatim pieces of data is given after the acronym RI); discussion board postings (**DB** to indicate the participant's attempt at scaffolding online discussions); feedback on assignment (**FA** to indicate the feedback the participant gave to students on their culminating

assignment for each module in the course), document analysis (**DA** to disclose patterns in the designed-in mediational tools); and, semi-structured validation interview (**SSVI)** to denote the final semi-structured validation interview conducted with the participant after sharing the case with him).

5.2. – The participant's designed-in mediation

I will start by presenting data on how Stephen designed his teaching so as to answer the two research questions above. I will first make the case that Stephen used a framework for teaching that is aligned with a Sociocultural perspective in that it sought to *mediate* students' learning and not just transmit knowledge. I will analyze how he enacted that mediation through the design of a course for teachers and instantiate the various mediational moves he designed via analyzing the course documents he shared with me during the observation of the lessons as well as through my access to his online course platform.

Stephen organized his courses, both on-site and online, around a series of PowerPoint presentations that showed horizontal coherence in that each module in the syllabus was organized following the same pattern. Table 5.2 below summarizes the contents of two of the ten PowerPoint presentations used during the on-site and online courses. For reasons of space only two are presented here, although all ten have been analyzed to disclose the organizational pattern designed by Stephen.

Table 5. 2 – Analysis of sample designed-in scaffold used in the course.

Slide #	Module 4	Module 6
1	Course name and number and title of session: Phonology	Course name and number and title of session: Phrases, clauses and sentences.
2	Series of sentences about Phonology with blanks on key terms associated with the discipline.	Substitution table labeled just with grammatical categories for students to make sentences
3	List of ten words including key terms (e.g. phoneme, vowel, alveolar), sound symbols, a sentence transcribed in symbols and the word "church" to be transcribed (symbols could be inferred from the transcribed sentence above).	Names of songs (phrases, clauses and sentences) for students to analyze using the grammar terminology at their disposal
4	Diagram of organs of speech labeled. Animation superimposes the same diagram but with an	Analysis of names of films to introduce the concepts of phrase, clause and sentence

Slide #	Module 4	Module 6
	empty vowel quadrant. Another animation places the vowels in the quadrant.	
5	Charts containing consonants and vowels in English and other languages (e.g. including clicks, implosives and ejectives) with their corresponding symbols. Superimposed soundtrack for students to recognize sounds and associate them with their corresponding symbol.	Names of songs for students to apply the new terminology
6	A list of words that vary by one phoneme only	Detailed answers on the activity above
7	Vowel quadrant for students to put the words in the correct place of articulation.	Summary of clause types adapted from Masters (1996)
8	Inclusion of diphthongs in the vowel chart.	Tree diagrams of the new concepts starting with the basic noun phrase and, through animations adding other sentence elements.
9	A diagram showing organs of speech, complete vowel quadrant with vowels and diphthongs, all manners of vowel articulation and a link to a webpage where students can see x-rays of actual vowel production.	More tree diagrams of the new concepts
10	Varieties of English. Vowel quadrant with places of articulation of vowels in New Zealand, Yorkshire, Northern Ireland, Scotland, South Wales and Cockney plus Received Pronunciation for students to try sounding vowels according to the different varieties.	Unlabeled tree diagram of a complete sentence for students to label
11	Chart showing vowel production in connected speech. Example features include intrusion (e.g. drawing)	Lyrics from songs for students to analyze
12	Words and phrases in phonetic script for students to provide the words in orthographic script.	Incomplete substitution table for students to complete
13	Names of characters from films and TV series which, when pronounced show particular articulations of vowels (e.g. move to semivowels)	Lyrics from songs including negative and interrogative for students to analyze.
14	Sentences in phonetic script.	Incomplete substitution table of negatives for students to complete
15	Lessons from an old English language teaching textbook using the Phonetic approach.	Jumbled words for students to sequence into clauses and sentences.
16	Adrian Underhill's Phonemic Chart.	Excerpts of language practice activities from language learning activity books for analysis
17	Gattegno's original English Sound Color Chart	Excerpt of a student's book for language learning to deconstruct how clauses and sentences are presented.
18	Activities to do with Underhill's sound chart derived from Gattegno's instructions on how to use the Sound Color Chart.	Excerpt from a resource book belonging to a language learning textbook series for students to analyze.
19	Link to the webpage for International Dialects of English for students to listen to listen to some non-English speakers speaking English and transcribing parts of the recordings.	Picture from a language learning coursebook for students to create a teaching and practice sequence of the concept presented in the session.
20	Instructions: Write a short description of themselves in English and transcribe that using	Photo of students in a classroom interacting using a handout with pictures. Transcript of the interaction. Students have to analyze learner

Slide #	Module 4	Module 6
	phonemic (not phonetic) script, and identify the variety of English they use.	language and provide solutions to problems that may arise in the use of the concepts taught in the session.

The internal structure of the presentations can be described as consisting of 9 different sections, or moves, according to the function they perform. In the context of the data analysis in this study function refers to the motive, or goal, of a particular utterance, that is to say, the purpose for which that utterance was put. I initially categorized each of the blocks in the presentations thematically (e.g. activation of background knowledge, introduction of new scientific concepts, exemplification of the new scientific concepts in various contexts so as to saturate comprehension, checking of comprehension of the new scientific concepts, application of the new scientific concepts, reinforcement and extension of the new scientific concepts, readiness probe for independent work, and assessment of the module via an assignment) by carefully analyzing the documents and looking at the purpose each slide fulfilled. I then subjected that categorization to validation by the participant during the Retrospective Interview and the Semi Structured Interview.

The different designed-in phases of the lessons were the same both for the on-site and the online delivery of the courses. Stephen confirmed that the stages referred to above were applied to both contexts during the semi-structured validation interview as well as during the retrospective interview. During the semi structured interview and referring specifically to his on-site teaching, he explained:

> Yes, this arrangement that starts from the background knowledge and progresses through presentation, application and extension with the corresponding checks of understanding is fairly typical of every session I teach whether on-site or online. I might vary it up occasionally given the level of prior knowledge of the students in the group. If the group is experienced, I might start with a textbook activity or more direct application of the new concepts and build the new concepts from there. We will use that prior knowledge as a launching pad and then start problematizing from there **(SSVI, 00:05:32)**.

And again, during the retrospective interview while analyzing the progression in the online environment when assessing his work on the Discussion Board for Module 2, he stated:

> This is the standard pattern I tend to follow when teaching - where we work from some data, pull out some, identify some features of it, categorize those, evaluate them and then talk about their classroom application. I generally start off by posing some sort of discovery learning activity to engage their background knowledge after which, through conversation, we delve into the data, find connections to teaching and finally assess the learning during the development of the module. **[RI, 00:42:14]**

Table 5.3 below summarizes the internal structure of each of the 10 PowerPoint presentations used in both the on-site classes and in the online classes. Following the presentation of the table, I analyze the mediational moves evident at the designed-in level, by providing quotes from the data.

Table 5. 3 – Designed-in tools used by Stephen

Slide	Format	Content	Function	Theme
Introductory slide	*Course name and session number over blank background*	*Title and session number*	*Inform participants of the session number*	*Macrocomment*
Slide 1	*Blank background, no titles, superimposed scanned materials, bulleted sentences, animations.*	*Questions; Cartoons; Tasks or Videos that introduce an experiential element of the topic of the session.*	*Pose a problem related to the topic of the session for students to solve.*	*Activation of students' background knowledge*
Slides 2 and 3		*Anchor texts, cartoons, videos or illustrations that problematize the topic further or that stretch students' prior knowledge of the topic.*	*Align students' background knowledge with the topic of the session.*	
Slide 4		*Key anchor text exemplifying clearly the topic of the session. Always from an authentic source.*	*Present a clear example of the topic of the session*	*Introduction of new scientific concepts*
Slides 5 – 9		*Various anchor texts showing where/when/why/how the topic of the session is used.*	*Present further examples in various contexts.*	*Exemplification of new scientific concepts*

Slide	Format	Content	Function	Theme
Slide 10		*Short task incorporating a gap that students must try to fill and zeroing in on the topic of the session.*	*Check comprehension of the session topic*	*Comprehension check of new scientific concepts*
Slides 11, 12, 13 and 14		*Anchor texts in multiple media where students have to demonstrate understanding by applying the topic of the session to the bridging of a gap: information, opinion or reasoning.*	*Have students apply the new concept or session topic.*	*Application of new scientific concepts.*
Slides 15, 16, 17		*Same or alternative anchor texts that show how the topic of the session plays a role in language teaching. Extensions to the language classroom via discussion.*	*Reinforce new concept or session topic by connections to language teaching*	*Reinforcement and extension of new scientific concepts*
Slides 18 and 19		*Further application tasks that act as assessment of the session and diagnosis for the next session.*	*Extend application and probe readiness for completion of the module assignment.*	*Readiness probe for independent work on scientific concepts.*
Slide 20		*Module evaluation via additional readings with comments, tasks to solve or papers to write.*	*Assignment*	*Assessment of the module.*

5.2.1 – Stephen's initial designed-in scaffolding moves. The table above summarizes how Stephen used a wide range of texts to design opportunities to mediate students' understanding of each new topic in the syllabus. These texts were always grounded on samples of authentic language in use and were used throughout the development of the module for various purposes such as presenting the new concepts, applying them or assessing the session, as will be made evident from the data below.

The first designed-in scaffolding move involved some sort of problem posing, or problematizing, as Stephen himself explained in the quote above, so as to raise awareness of the new topic in students (Slides 2 – 3). In this way, Stephen started by involving the students' everyday concepts so as to build up towards what would eventually become scientific concepts (see 3.4.1). In keeping with this orientation, Stephen used an inductive approach going from the data to the principles or patterns. He explained:

> That's how I prefer to work – going from the evidence and drawing out inductively some kind of principles, patterns. We'd start with, "Let's watch this clip. What do you see? What do you notice? Let's categorize those things. Let's talk about the effectiveness of them, etc." But, the principle is the same – it's an inductive approach, discovery learning, where I'm not telling them necessarily, I'm giving a few hints, but they've really got to find the patterns themselves. **(RI, 00:02:44)**

And, in discussing his decision-making during the design of the online Discussion Board for Module 5, he explicitly confirmed this intentional exploration of the students' background knowledge:

> So, focusing on what they know and don't know, I guess – I hadn't really thought about this before – is the reason for my insistence on going back and looking at authentic data which underpins virtually the whole, not just the design of the courses, both the on-site and online, but also the sequencing of the activities within each session. **(RI, 00:08:01)**

This specific scaffolding move is aligned with Hammond and Gibbons' (2005) characterization of designed-in scaffolding, particularly in what has to do with using mediational texts and accessing different semiotic systems to activate students' background knowledge. As an opening mediational move, the action (activating students' background knowledge to elicit an everyday concept so that it can be reified into a scientific concept) remained stable while the operation varied (sometimes students discuss, at other times they solve problems, visualize an introductory video or perform a task).

After this opening move Stephen introduced the key anchor text, intended to present the concept in scientific terms.

5.2.2 – Stephen's introduction of new scientific concepts. After having connected students' background knowledge and the new topic, Stephen overtly introduced it to students via a key text (Slide 4) that served the purpose of anchoring the new topic for analysis and discussion. In order to reinforce the presentation of

the material, Stephen provided additional texts where the new topic appeared in a salient way (Slides 5 – 9). It was at this stage that he introduced the concept in scientific terms, using the specific metalanguage that characterizes it. However, as evidenced in the data sample from the RI to be presented below, this was not intended to be a teacher-centered presentation where he just transmitted information. He aimed to co-construct, with students, new scientific concepts from their spontaneous understanding of those as everyday concepts (Vygotsky, 1986). In analyzing **ME4** Stephen commented on how he did that in the context of introducing the topic of cohesive ties (lexical, grammatical, referential, etc.) in stretches of connected speech during Module 4. He said, regarding how he chose to design the PowerPoint for that session:

> I'm presenting the new topic with this slide. They may have met the notion of cohesive ties already but we're now trying to categorize them, so we're using the text to do that. I made the decision explicitly not to put them into groups because I felt that it was easier now for them to do it, fairly non-threatening stuff that most teachers had dealt with. And they haven't been primed. I haven't put categories up for them to look for. **(RI, 00:10:07)**.

Furthermore, the quotation above presents hints of his intention to co-construct the new knowledge with students at the level of the discourse he uses to describe it. An interesting factor that emerges from his analysis of the situation is how Stephen conceived of his scaffolding *with* students. In explaining his actions, he chose to use the term "we" instead of "I" when addressing the mediational move of designing a specific slide. His decision-making seemed to be inextricably tied to his understanding of the students' level of comprehension of the new concepts, as evidenced by his changing focus from "we" to "I" at the moment of deciding how he is going to organize interaction during the lesson. Here he also included an element of *perezhivanie* in indicating what he "felt" and also procuring a task that was "non-threatening" to students. It can be said that he was attending both to his own subjective experience of the act of teaching and sought to create the conditions for a successful *perezhivanie* on the part of students. Additionally, by attending to the

students' evolving level of understanding he was evidencing attempts at creating an IDZ where the new scientific concepts could be mediated.

Further evidence of Stephen's mediation in pursuit of co-construction of the new scientific concepts is in how he described his actions during reflection on ME2 where he implemented the designed-in scaffold he had planned. When faced with a transcript of a particular contingent mediational move, he said:

> I'm working quite hard, almost putting words into their mouths to try and get them to focus on the features that I want, which suggests that they've only got a very slender grasp of them at this stage. But I insist, I do not want to just give it to them. I keep asking questions until they get it. **(RI, 00:14:22)**.

On surface, this testimony does not bring to mind the idea of co-construction, but one of direct instruction. However, Stephen claimed in this passage that he did not want to "just give it to them" (though he is "almost" putting words in their mouth – by this he means in the mediational episode referred to here, he was asking a lot of questions). He saw students had only a very slender grasp of the concept and he could have just taught the students directly. Instead, he chose to continue asking questions until he ascertained that they had understood.

And, in analyzing the limitations of using PowerPoint presentations during interactive teaching he also hinted at his purposeful engagement in dialogic teaching through co-construction with students. He characterized his need to respond to students' emerging understanding thus:

> One of the problems with PowerPoints is that you get constrained by your own designed sequence of slides. It is difficult to reconfigure them as you're teaching when you come up against a problem. I would very much like not to rely so much on PowerPoint and instead base my teaching on the flow of their thinking, their learning curve. **(SSVI, 00:18:52)**

This depiction of his use of the designed-in scaffold (the key anchor text) and explicitation of his implementation of a particular mediational move aimed at making the new scientific concept salient was also evidence of his attempt to create the IDZ I referred to above. The key anchor text and related anchor texts used for illustration served the purpose of "saturating the students' exposure to the new concepts" (Stephen, **SSVI, 19:05**) so that these texts became the starting point of the co-construction between himself and the students. In a way, the anchor texts became the tool around which Stephen engaged students in growing up their everyday concepts to the level of scientific knowledge but not in a cursory way. Instead, he used the anchor texts as the focus around which, through interactive, dialogic moves, he and his students, together, co-constructed those scientific concepts.

Given that he attended to both his teaching process and the learners' readiness and participation in their own learning process, we can say that Stephen engaged in *obuchenie*, as described in 1.4, in that he purposefully designed ways to build a relationship between his teaching and the students' cognitive development and learning.

5.2.3 – From presentation to confirmation and application. Stephen followed up his presentation by challenging his students to move a step further, i.e. to show that they had learned the new scientific concept by providing a comprehension check (Slide 10). About this particular scaffolding move he said:

> We have previously isolated the features of the new concept. So, really this is a kind of review or comprehension check. Here I'd like to use a sort of eliciting technique to make sure students fully know the meaning of the new terms and have become familiar with the new scientific concepts, they can "talk in scientific concepts." But I wouldn't try to elicit those new terms had I not already known that they should have been able to retrieve them from memory. **(RI, 00:17:09)**

Again, at the level of discourse, we see how the dialectic of *obuchenie* plays out in Stephen's designed-in scaffold. He hinted at the intention to co-construct the new concept with students by starting his explanation with the word "We" and then explained how his actions would be contingent upon students' having understood, or at the very least, memorized the new scientific concepts and their associated metalanguage.

In Slides 11 – 14 further anchor texts were selected for students to work in groups applying the newly gained understandings of the scientific concepts. He opted to do these tasks in pairs or groups so that students felt they could freely attempt to master the new scientific concepts without feeling observed, assessed or judged. In reflecting about this stage of the designed-in lesson, Stephen said:

> I offer more example texts but this time for them to work in pairs or groups. I think I do this maybe partly because I think I trust them, a) I trust them to be able to sort things out themselves and do it in plenary afterwards and b) I think that maybe my presence … the whole point of the pair and group work is to do it out of reach of the instructor, so they do feel like they can say whatever they want. They don't constantly feel they're being assessed and judged. It's real hands-off kind of decision **(RI, 00:18:33)**.

Stephen's concern for the wellbeing of his students was evident as he pointed at how relevant the *perezhivanie* of the students was to his depiction of teaching and learning. Trust in the students' having learned the new scientific concepts and the absence of threat of judgment while they demonstrate they can do so pointed to the fact that Stephen valued a mode of learning which was enriched not just by his interventions, but also by the joint work of/with students.

However, lessons do not end here. There are still three more mediational moves that helped Stephen ascertain the internalization of the new concepts by students.

5.2.4 – Stephen's *obuchenie* through transcendence. So far, data show that at the designed-in level, Stephen complied with all the requirements of an organic MLE as depicted in Chapter III. In particular, the next mediational moves (Slides 15 – 17) were intended to extend the learning beyond the teacher education classroom and into the actual language classroom, where students would perform their professional role. In that sense, the next designed-in mediational move exemplified the concept of transcendence as explained in 3.3.3. In short, this orientation towards transcendence seemed to indicate that a course on language for teachers should be imbued with opportunities to focus on how the course content connected to the students' future performance as teachers in the classroom. Stephen explained how he wove content and the future performative role of his students when he reflected on how he corrected students' errors:

> I'm dealing with the content primarily, but not forgetting, and I also think it's a good example to them, as teachers, how they could deal with students' errors like this. So, this is quite a useful pedagogical technique you can demonstrate. **(RI 00:19:16)**

While he did take the content into consideration, as is ideally the case in an academic course at a post-graduate level, he was also modeling for students how the content is enacted at a performative level within the profession. Hence, he was not concerned with students' just learning the new concepts in the "here and now," but also with how this content would be relevant in the future.

More forcefully, while reflecting on why he includes this future orientation in all of his classes he stated:

> [This course]'s for teachers and, hence, we need to be constantly reminding ourselves of how these areas that we're looking at are dealt with in the actual classroom apart from anything else, or how they could be taught within particular contexts. So, it's always bringing it back to classroom as much as possible **(RI 00:20:11).**

This explicit orientation towards transcending the here and now attests to Stephen's purposeful intent at mediation at the level of potential, and not just actual, development of students. The value of such a move is twofold, as Stephen himself explained. Students are not just learning new concepts for the sake of learning them, but to appropriate their use as tools for future performance in a professional role.

5.2.5 – Ascertaining that learning has taken place. The penultimate designed-in scaffold in Stephen's teaching involved the posing of an activity where he gauged whether students were ready for the end of module assignment (Slides 18 - 19).

To this avail, he ascertained that the task that he proposed engaged students both at cognitive and metacognitive levels. For example, in designing Session 4, during which students would be dealing with cohesive devices within a rather obscure text, he decided to include a discovery activity. He typed and animated each word in the text separately so that words would appear one at a time and he expected students to come up with the appropriate cohesive device and explain its use. He described his planning of this activity thus:

> So, what is a kind of fun thing to do, where you take a text and we start from one word and we expand out from there to see at what point they start to recognize the new concept. And the idea is that they are meant to be monitoring their thought process as they go along … So, hence, the working together in groups, the decisions about who should work with who, and giving them as much time as they need – these are deliberate decisions to confirm that they can do it on their own, that they are ready for a new challenge **(RI 00:24:29)**.

This last designed-in mediational move effectively summarized the contents of the session and helped Stephen diagnose whether students were ready to engage

in independent application and/or elaboration of the new scientific concepts via an individual assignment (Slide 20).

All individual assignments were crafted as authentic performance tasks, that is to say, they posed a problem or situation which was typical of professional practice where students had to synthesize their understanding of the knowledge gained during the module into the application, evaluation or creation of an artefact which is characteristic of professional practice. For example, the assessment for Module 6 described at the beginning of this chapter had students access a transcript of authentic student language and they had to analyze it through the lens of the newly acquired scientific concepts so as to spot problems in the learners' use of language in the transcript and come up with solutions to those problems. Thus, they were once again put into the professional role and what is assessed is their ability to apply the knowledge in authentic situations.

One final point to note is how he chose to have students complete the assignments. He gave students a two-step submission opportunity. He explained:

> In the formal written assignments, they get two chances to submit. Giving them a chance to rectify that means that the final version is a lot easier to grade because it is not a mess. To me, that's an interesting kind of scaffolding because it's an individual scaffold where you give them feedback almost line by line on a draft and then they can rework it and re-visit all those concepts they got wrong. It is really a continuation of the same processes that we have been using on the discussion board or during the face-to-face lessons, but much more direct. **(SSVI, 00:48:32)**

The evidence so far points to the fact that Stephen designs his scaffolding intentionally and always bearing in mind the students' actual and potential levels of development. In order to understand this further, I will now substantiate some aspects of Stephen's planning that stood out.

5.3 – The nature of Stephen's designed-in scaffolding

From the analysis of the designed-in scaffolding tools provided by Stephen, we can see that the intentionality behind the planning was aligned with a Sociocultural perspective to teaching, where the motive of the activity was the empowerment of the students to perform in the future as full-fledged language teachers by appropriating the necessary conceptual tools to succeed in that endeavor. To achieve this, the instructor organized instruction around key scientific concepts that form part of the knowledge base of language teacher education (Freeman and Johnson, 1998).

The evidence presented here attests to his intention to engage in goal-oriented design activity that sought to scaffold students' learning with the purpose of co-constructing knowledge. At the beginning of each module that co-construction was undertaken among students and instructor. Later on, he purposefully designed in tasks that would encourage mediation from peers mostly. In this way, Stephen was progressively transferring control over the new scientific concepts over to students who would ultimately show they have appropriated them via the module assignment. As Mercer and Howe (2012, p. 16) described it, Stephen designed in the tools for a dialogic process "a joint, coordinated form of co-reasoning in language, with speakers sharing knowledge, challenging ideas, evaluating evidence and considering options in a reasoned and equitable way." This became clear not only through his use of particular language to address the attempt at co-construction, but also through the organization of each of the modules in the course. In this sense, Stephen's designed-in mediation aligns with the requirements of an organic MLE where students' learning efforts are scaffolded through intentionality and reciprocity on the part of the teacher.

First and foremost, there was intentionality in Stephen's selection of learning experiences in that they all connected to the future roles of students as teachers. Also, he selected key anchor texts that clearly introduced the new scientific concepts, but he built in a prior exploration of students' background knowledge in

ways which problematized the new concepts and made students aware of the gap between what they knew and what they were supposed to know as teachers. Meaningfulness was ascertained through the use of authentic anchor texts found in the contexts of real-life practice of teaching activity (for example, coursebooks, sound charts, song lyrics, names of films), all artefacts students may be familiar with either by having met them in their professional practice or having seen them during teaching practice. Additionally, the intentional saturation of examples of the new concepts that occurred immediately after their being introduced to students sought to build on new and nuanced layers of meaning-making about the new concepts. With the contents of each new slide, students were expected to learn something new not through transmission or in isolation, but through intentional efforts on the part of the instructor to co-construct that knowledge, thus allowing students to move forward within the ZPD.

Stephen also imbued the negotiation of new meanings into the various texts and tasks associated with those texts by making sure that there was a comprehension check during the development of the lesson as well as a readiness probe prior to giving the assignment that would evaluate the students' learning of the contents of the module via an authentic performance task. What is more, a further scaffold was built into the assignments via allowing students to resubmit after receiving feedback from the instructor.

One thing to add to the above argument is what appeared to be an intentional attempt to find growth points through disturbances during the lesson. While these would be most readily seen during interactive teaching and learning, the inclusion of the comprehension check and the readiness probe prior to giving the assignment as integral parts of the teaching sequence seem to indicate that even at the designed-in level, Stephen was building in opportunities to trace contradictions in students' appropriation of the new conceptual tools so as to take remedial action, should it be needed. As I explained in section 3.3, when disturbances surface, they act as catalysts for growth points to emerge. It is at this growth point that it becomes evident that further mediation is needed, which we referred to before as scaffolding

at the point of need. Disturbances indicating a growth point are not to be understood as negative appropriations of scientific concepts but as signposts signaling that mediation oriented towards promoting new leaning may no longer be needed so it can be phased out (Johnson and Golombek, 2016).

Perhaps what was most salient in this presentation of the designed-in elements in Stephen's teaching was his orientation towards the future through imbuing his instructional design of elements of transcendence. According to Sherin (2004), organic mediation happens when the attempt of the mediator is not focused on the solution of the task at hand but on enabling the mediated to be able to gain enhanced levels of participation in the activity for which the mediated is preparing. The explicit inclusion of a connection to the teaching world seems to be a definite attempt to help his students develop the new scientific concepts into new everyday professional concepts for them. Additionally, the inclusion in that section of the session plan of materials students would have to use in professional realms is also an indication of this construct.

The new scientific concepts were introduced, exemplified, and expanded through texts and other semiotic systems (images, videos, sounds, etc.). In this respect, Stephen's designed-in scaffolding complies with the contingent multimodality expected of an organic MLE. However, these alternatives to language were not included in a haphazard way, but purposefully selected to generate further learning. One such example is the inclusion of the Phonemic script for the teaching of sounds which was described in the analysis of Module 4 above (Table 5.2). After introducing the symbols for Received Pronunciation (RP), Stephen purposefully designed the inclusion of symbols pertaining to other varieties of English. The intent of the sequence was to clearly make explicit to students the place of articulation of the different vowel sounds. The inclusion of varieties of English can be read as an attempt at including a new semiotic symbol for the purpose of reinforcing the learning of the concept at hand (i.e. how vowel sounds are articulated in RP).

Finally, the social-to-individual orientation of Stephen's designed-in features became evident both through the proposed teaching sequence: disrupting current understandings in students' prior knowledge to raise awareness of the social rules that guide the activity to introducing new concepts – the means for social regulation – and making sure these are appropriated by students and that they can effectively put them to use as evidenced in the results of the assessment of the module.

Further evidence of Stephen's intentionality in promoting an MLE that would allow him to properly scaffold his students' learning could be found in the fact that the analysis of mediational artefacts presented above complies with all the requirements of educational scaffolds as proposed by Hammond and Gibbons (2005). Stephen's designed-in scaffolds:

a) explored students' background knowledge and experience;
b) were implemented through tasks that make evident the gap in knowledge between what students know and what they are to learn;
c) sequenced tasks in a way that progressively transferred control over the new concepts from the instructor to the students themselves;
d) provided for multiple participant structures as students worked individually, in pairs, in groups and as a whole group, both among themselves, and also with the instructor;
e) engaged different semiotic systems in meaning-making;
f) centered classroom activity around mediational texts that were relevant to the motive of the activity;
g) offered opportunities for the development of metalinguistic and metacognitive awareness as the tasks and activities designed aimed to explicitly develop key scientific concepts while promoting appropriation of those concepts by students for the purpose of self-regulation

Having considered Stephen's intentions at the designed-in level, I now turn to an exploration of Stephen's contingent scaffolding in both online and on-site settings.

5.4 – Stephen's contingent scaffolding

Stephen offered contingent scaffolding in three distinct contexts: a) during interactive teaching in the face-to-face on-site sessions, b) in the online discussion boards, and c) in his comments on the assignments students submitted at the end of each module.

The process for determining the codes used during the second cycle of coding oriented towards understanding how the designed-in features were put into play during dialogic mediation in face-to-face sessions, as well as through the organization and participation in the online discussion board, and, in the feedback, he provided to students' assignments was thus:

1) Data for each of the contexts (on-site and online) were thematically organized under the headings of the designed-in framework explained in the previous section. This organized data according to themes (e.g. activation of background knowledge or introduction of new scientific concepts).

2) Once data were thematized, they were analyzed for their *format*, that is, the actual mediational *action* that Stephen engaged in. For example, one such format was the use of questions. The data analyzed yielded that during dialogic on-site teaching, questioning happened mostly via I→R→F sequences. These sequences appeared in four distinct moments of the face-to-face lesson but were less frequently observed in the online discussion boards and were almost non-existent in the feedback on assignments. These points will be illustrated and clarified in the following sections and are included here for the sake of exemplification.

3) Lastly, each of the implemented scaffolds was analyzed for the *function* that each fulfilled in the specific mediational activity. For instance, questions during the activation of background knowledge phase were used to probe

students' background knowledge, redirect their attention to specific features and also as a check of comprehension. In the CHAT framework used in this enquiry, the function of the scaffolds is equated with the *operations* within the activity.

Both *formats* and *functions* were finally analyzed through a concordances program to determine their frequency. This analysis was done to resolve the limitation encountered during the first coding cycle where I tried to analyze the whole corpus of data but that analysis did not yield any distinctive patterns, as explained in 4.5.

This functional analysis took into consideration the activity (e.g., mediating the appropriation of scientific knowledge by students), the various actions which encompassed the activity (e.g. questioning, illustration, analysis) and the operations that guided those actions (e.g. appropriating students' discourse and problematizing it). A CHAT analysis of how the various moves presented here interact across contexts together with the affordances that each context provides will be offered in the next chapter.

The mediational moves observed and analyzed operated at many levels and not just at the conceptual level. In this sense, Moll's (2014) elaboration on the nature of the contingent scaffolds is a relevant starting point for our discussion. During interactive, dialogic teaching, Stephen resorted to all four kinds of mediation, as described by the aforementioned author: social, instrumental, semiotic, and individual. The nature of the mediation became particularly influential during the second coding cycle of the data as it provided a clear description of the form of mediation which, in turn, helped disclose the function that the various mediational moves implemented had served. During the Semi Structured Validation Interview, Stephen was given the chance to confirm or correct these characterizations, as will be seen in the presentation of the data further on in this chapter.

Stephen offered social mediation by organizing students' work in groups or pairs so that they could interact and co-construct knowledge among peers. From the visualization of the video recordings this kind of work was prominently seen during the activation of students' background knowledge, the application of the new scientific concepts, and the reinforcement and extension phases of the designed-in lessons, as will be seen in the analysis of the data below.

Instrumental mediation was a constant in all phases of the lessons, as Stephen used multimodal anchor texts as a tool to access the student's evolving understanding of the new concepts as well as to check and consolidate, reinforce and extend their learning.

Semiotic mediation occurred mostly through the use of language, illustrations, pictures and diagrams and was most notably appreciated during the introduction of new concepts, checking of comprehension, application, reinforcement and extension, and readiness probe phases of the lesson.

Individual mediation surfaced during most interactive teaching as he engaged students at a personal level so that they could exercise their agency, though it was most noticeably seen during the application of new concepts and reinforcement and extension phases of the lesson.

From the analysis of 92 samples of mediational episodes in the corpus, a total of 11 different formats was identified. Table 5.4 summarizes the frequency of the formats used by Stephen across contexts. In subsequent sections I will analyze how these formats and their associated functions allowed Stephen to provide contingent scaffolding to his students in the context in which they appeared most prominently. I have purposefully left out four of these formats because of their scarce appearance in the data. These are: questions from students, using quotations, redirecting to the anchor text, and setting the context.

Table 5. 4 – Frequency of contingent scaffold formats used across contexts.

1.	Questioning	27.17%
2.	Appropriating students' discourse	17.39%
3.	Confirming answers	10.87%
4.	Flagging examples	10.87%
5.	Acknowledging	7.61%
6.	Recapping	7.61%
7.	Explaining	4.35%
8.	Questioning by students	2.17%
9.	Quoting	2.17%
10.	Redirecting to anchor text	1.09%
11.	Setting the context	1.09%

5.4.1 – Stephen's contingent scaffolding during on-site classes. Stephen used various formats which served multiple scaffolding purposes during the on-site sessions of the course. Table 5.5 summarizes the scaffolds he used during on-site classes. For reasons of space, I will only analyze the most frequent formats, with their associated functions across contexts. In this case, the most frequent formats include: questioning, flagging examples and recapping. A thorough list of formats and functions disclosed from the data appear in Appendix D.

Table 5. 5 – A summary of formats and functions of scaffolds during on-site classes

Themes	On-site teaching	
	Format	**Function**
Macrocomment	Nomination of session and topic of the session	Orient students towards the new scientific concepts.
Activation of students' background knowledge	Set the context	Engage students in activity
	Confirm answers	Affirm and encourage students to continue
	Question	Problematize scientific concepts through comparison
	Question	Check understanding and lead
	Question	Problematize scientific concepts
	Flag examples	Exemplify and model
	Recap	Summarize
Introduction of the new scientific concepts	Question	Assisted recall
	Question	Assisted recall
	Question	Demand scientific concept
	Nominate student	Demand scientific concept
	Appropriate student's discourse	Clarify
	Question	Direct students' attention
	Redirect to anchor text	Demand scientific concept

Themes	On-site teaching	
	Format	**Function**
	Question	Demand scientific concept
	Question	Demand scientific concept
	Recap	Summarize
Exemplification of the new scientific concepts	Question	Direct students' attention
	Question	Focus on scientific concept
	Confirm answers	Focus on scientific concept
Comprehension check of the new scientific concepts	Question	Pose problem
	Question	Pose problem
	Question	Reinforce concept
	Question	Reinforce concept
	Recap	Introduce incidental concept
	Recap	Summarize
Application of the new scientific concepts	Flag example	Direct students' attention
	Recap	Explain and clarify
	Flag example	Explain
	Flag example	Summarize
Reinforcement and extension of the new scientific concepts	Flag example	Focus on scientific concept
	Question	Demand scientific concept
	Flag example	Demand scientific concept
	Explain	Review and reinforce scientific concept
	Confirm students' answer	Reinforce the scientific concept
Readiness probe for independent work	Question	Demand scientific concept
	Question	Provide options to reinforce concept
	Confirm students' answers	Open up discourse
	Flag example	Demand scientific concept
Assignment	Quote with a brief explanation and guiding questions or instructions	Orient the application of the new scientific concepts

5.4.1.1 – Questioning. The use of questions via an I→R→F sequence was a widespread source of mediation in Stephen's interactive teaching sessions. On the surface, this form of mediation appears transmissive rather than dialogic, in that it can be couched as a series of question-and-answer exchanges seeking a correct answer that emulate I→R→F sequences that operate more from tradition than intention.

On closer examination, however, we can see that in this case, these questions pursued a particular purpose and were motivated by the specific intention to engage students in co-constructing knowledge with the instructor. First, the sequences evidenced in the data are not intended to seek a correct answer alone, but to increase the prospectiveness opening up the discourse so students can

elaborate on the new scientific concepts. Here is a sample I→R→F sequence used to introduce new scientific concepts that complied with this depiction:

Data sample	*Function it fulfilled*
1. Stephen: Lexical? And remember that lexical	*Assisted recall*
2. cohesive devices including things like…?	
3. There's an example here. Very basic level.	
4. There is…	
5. Laura: Repetition.	
6. Stephen: Repetition. Of?	*Redirect*
7. Amanda: Bill	
8. Stephen: Bill. Bill. So, they've got direct	
9. repetition. Anything else? Anything else?	*Demand the new scientific concept*
10. Kind of lexical sets?	*through probing*
11. Students: (mumble)	
12. Stephen: Laura?	*Demand the new scientific concept*
13. Laura: I was thinking, 'treated'? Treatment,	*through nominating a student*
14. treated.	
15. Stephen: So, it belongs to a semantic set. It's	*Extend students' discourse*
16. got something in common. Exactly. So there	*Confirm*
17. is that connection, yeah. Well, is it,	
18. you're right in the sense that there is a …	
19. Josh: a reason implied.	
20. Amanda: If you have it, you'll be pain free,	
21. like Bill.	
22. Stephen: Bill had a problem and now he's	*Redirect to the text to help students*
23. pain free. Yeah, ok. There's a sort of	*focus on the concept*
24. rhetorical organization. But before we look	
25. at anything else that's lexical let's explore	
26. the next order. Grammatical, there is…?	*Demand new scientific concept*
27. Stephanie: Pronouns.	*through leading*
28. Stephen: Pronouns. Pronouns.	*Appropriate students' discourse*
29. Bob: Anaphoric.	*Demand precision in scientific*
30. Stephen: Anaphoric? What?	*knowledge*
31. Bob: Reference	
32. Stephen: Exactly! Anaphoric reference. So,	*Summarizes students' understanding*
33. we've got 'he', the referent is clearly 'Bill.'	*of scientific concept.*
34. I'm not interested in the stuff. That's also	
35. clearly anaphoric reference in the first	
36. sentence. But let's assume I am not	
37. interested in the sentence's internal	*Redirect to demand more examples*
38. features at the moment. And anything else?	
39. Any other?	
ME3	

The I→R→F sequence above shows how Stephen's ongoing involvement with students opened up their discourse so that they were led towards the new scientific concept. Stephen continued probing his students' understanding of the new scientific concept by posing questions that directed them to seek evidence in the

anchor texts (lines 22—23) or indicated a change in the motive of the activity, once students demonstrated appropriation of the new conceptual tools (lines 29—39). In this sense, through a demand scaffold (Sharpe, 2006) that required that they explicitly nominated the new scientific concepts, he was assisting students in stretching their current capacity to handle that new scientific concept. He was helping students appropriate that new scientific concept by requesting precision in the use of the new terminology (lines 29—31). He did not do so solely by demanding answers to questions but used this questioning technique to redirect students' attention to the text (lines 22—23), to redirect his very question to the group thus increasing prospectiveness (lines 6, 26, and 39), by appropriating students' discourse (line 28) and leading (line 26).

There is evidence above that Stephen also created an IDZ with his students. The intentional and insisting redirecting back to the anchor text and his constant gauging of where students' understanding was, coupled with ongoing participation by many of the students in the class (there were 8 students in this class and 5 of them participated actively by contributing) show that students were engaged in co-exploration and co-construction with Stephen. One particular interaction attests to this, when students Josh and Amanda in lines 19—21 appropriated Stephen's discourse by purposefully trying to contribute to the co-construction of the concept, which was followed up by Stephen's confirming and beginning to wrap up the issue of coherence though lexis before moving on to coherence through grammar. It can be said, then, that the data above portray an instance of *obuchenie* or dialogic teaching. The quality and quantity of assistance from Stephen started to wane once Stephen had identified a growth point at which students became enabled to perform without his assistance (Kaptelenin and Nardi, 2006).

The data above suggest that Stephen used one particular action (the *questioning* format) to accomplish mediation via a series of contingent operations (demanding, redirecting, extending, and appropriating, among others).

In terms of CHAT, this action format stems from the practices that teachers grow into as they are immersed in the culture of their profession and thus they require conscious attention and purposefulness (Wells, 1993). Operations, in contrast, are routinized scripts which do not. It appears from the data above, and the analysis of many other instances of the use of questioning actions during interactive teaching, that this does not seem to be the case. To me, it is the action that has become routinized and the intentionality and conscious attention lies at the level of operations. Stephen hinted at this distinction I make during the Retrospective Interview when he said

> In the classroom, looking at those interactions that you've just shown me, I think a lot of them are display questions which I know the answer and I'm just trying to pull the knowledge out from them. It's something teachers do, right? But the display question is just the trigger and it comes up automatically as a reaction of what someone said. Then, based on that, I probe, I challenge, problematize, contextualize … I guess it is the response that I get to the question that makes me decide what to do **(RI, 00:36:24).**

Questioning formats are but one scaffold used by Stephen within a series of mediational actions. Stephen also frequently flagged examples in order to fulfill a variety of purposes oriented towards the motive of the activity.

5.4.1.2 – Flagging examples. Flagging examples from the anchor texts was another attempt used by Stephen to create and sustain an IDZ oriented towards the internalization by students of the scientific concepts in the course.

This flagging of examples served a variety of purposes, such as explaining, summarizing, demanding the provision of the scientific concept, directing students' attention, and many others. Once again, we see how one mediational format is used to enact a series of mediational operations which are intentional and goal-directed.

This scaffold was most frequently seen during the application, reinforcement and readiness probe phases of interactive teaching, as depicted in the following data set:

	Data sample	***Function it fulfilled***
1.	Stephen: Don't be fooled if you see a verb here. This is not a	*Direct students' attention*
2.	finite verb. The verb simply begins a post	*Explain*
3.	modification, in this case at discourse level [Reading	
4.	from anchor text] "Studies of negative discourse,	
5.	which have been carried out over the past 20	
6.	years…" "Another way in which, another problem,	
7.	sorry relate, related…" Ok, what's the head of this	
8.	phrase?	*Demand scientific concept*
9.	Melanie: It's a noun phrase.	
10.	Stephen: And how do we know?	*Asks student to summarize the concept by providing evidence.*

(ME1)

The example above comes from the application of the new scientific concept phase of Module 6, dealing with sentences, clauses and phrases. Students had just completed an activity in groups where they had to create tree diagrams for sample sentences the instructor had provided. Following that, Stephen brought the class back into plenary mode and, as different groups provided their answers, he used the anchor texts in order to provide further mediation, while commenting on the results of the task. The operations fulfilled by the flagging examples format served three purposes: directing students' attention (line 1), providing an explanation that leads back to the example (lines 2 – 6), and demanding the nomination of the scientific concept (lines 7 – 8). In keeping with his dialogic approach to teaching, even when explaining, he did not lose sight of the need to keep opening up the discourse through increasing prospectiveness. This example finished with a demand move that prompted students to nominate the scientific concept, something they had already done (line 10). On surface, it may look as though Stephen closed the I→R→F sequence by asking a display question. However, once he got the correct answer, he increased prospectiveness by posing yet another question, this time demanding evidence. In this way, he was probing into students' understanding of the scientific concept.

Another example of this kind of move comes from the reinforcement and extension phase of the lesson. In the next mediational episode on connectors and linkers, students are applying the scientific concepts to an analysis of how texts that would be suitable for language learners could be analyzed:

Data sample	***Function it fulfilled***
1. Stephen: These are from a children's encyclopedia.	*Orientation to text and task*
2. I've underlined the logical connectors or the linkers.	
3. Can you tell me what they mean?	*Focus on scientific concept*
4. Bob: Addition	
5. Stephen: It's adding something. What is 'so'? "A	*Affirming*
6. spider has eight legs. So, it is not an insect."	*Redirecting to text.*
7. Pam: Consequence. Result.	
8. Stephen: Yes…, I mean, it's that general area of	*Affirming and leading*
9. attributing causality or results.	
10. Pam: Cause and effect.	*Affirming and redirecting to text for further examples*
11. Stephen: Precisely! Because it has eight legs, it's not	
12. an insect. We could rephrase it that way. It's not	
13. addition so much as it has eight legs and it's an	
14. insect, no. Because it has eight legs, it is an insect.	*Redirecting to another example from the text*
15. And this one, [Reading from the slide] "Cold-blooded	
16. creatures, such as reptiles, cannot control their body	
17. temperature like we can." This is why they prefer life	
18. on land where it is easier for them to warm up but	
19. there are some reptiles that have adapted to ocean	
20. life. So, it's a…?	*Demand scientific concept*
21. Amanda: Contrast?	
22. Stephen: Contrast. Yes? Or something that's got an	*Affirming.*
23. adversative relationship. Here's a couple more.	*Redirecting to another example*
24. "Ancient Egyptians were skilled at making mummies.	
25. The body's {rrrr} Next the body was {rrrrr} Then it	
26. was {rrrr} Finally the body…	
27. Javier: Sequence. Transition.	
28. Stephen: Well, sequence I think. Sequencing device,	*Affirming. Explaining.*
29. so, putting things in some kind of chronological	
30. order. In terms of time.	
ME 7	

Again, Stephen kept the students going back to the anchor texts and flagging examples oriented to reinforcing the new academic concepts through an extension of these to the language classroom. It should be remembered that prior to this phase of the lesson students had been introduced to the new concepts and that Stephen had illustrated these and checked students' comprehension. Because of this, in the excerpt above we see students contributing mostly correct answers (lines 4, 7, 10, 22

and 27), if we compare the performance of students in this mediational episode to their performance during **ME3** in the previous section.

Two things stand out from these data. First, Stephen grounded his mediation in anchor texts that presented data of real language in use to be then extrapolated to the work of the students as teachers in the language classroom. Regarding this, during the SSVI, he observed:

> In on-site teaching, I'd say this would tend to be the standard pattern - where we work from some data, pull out some, identify some features of it, categorize those, etcetera, evaluate them and then talk about their classroom application. It would be interesting to, and I guess I do this occasionally, to experiment with the complete reverse pattern. But, I think I do that less. It's more starting with real data and then working towards classroom application rather than the other way around. **(SSVI, 00:07:09)**

Additionally, the anchor texts seemed to act as one of the linchpins that helped keep the IDZ we referred to in the last section alive, as students actively contributed their own evolving thinking and understanding of the new concepts by coming back to the texts, albeit under Stephen's mediation.

5.4.1.3 – Recapping. The third most frequent scaffold during Stephen's interactive teaching was recapping. It was most noticeably enacted during the introduction of new concepts and the readiness probe for independent work phases of the lesson, but it was also applied "at the point of need" during other phases of the lesson as well. Lines 32-39 in ME3 discussed above presented one such instance of recapping during the introduction of new concept. In that context, recapping served as a summary of the scientific concept for students.

But recapping was also used in order to explain and clarify, as in the example below where he flagged one of the anchor texts and used it to explain and clarify at the end of an interactive sequence:

> Stephen: These are all related to the academic abstract text, and they raise a couple of issues relating to the parsing of a noun phrase. But they're just good examples of these massively long noun phrases. I mean that is a complete noun phrase, the first one. And notice that a noun phrase like that can accommodate all sorts of sentences. **(ME1)**

Also, recapping was used to expand on an incidental academic concept, one which was unexpected or unintended on the part of Stephen but which students brought to bear. In the following episode, a student made a comment about spotting his own mistake in using quantifiers during a plenary discussion on subject-verb agreement during ME1

Data sample	***Function it fulfilled***
1. Bob: Actually, I was telling her that I think I typed 'less 2. words' and when I went back to proof read it, I was like, 3. 'Oh, I didn't put that in there. Where did this come 4. from? Oh, my! I am writing like my students!'	*Student introduces an unanticipated academic concept.*
5. Stephen: Ah! Well spotted. Ah, I mean, the language is	*Affirming*
6. changing. It's so curious that so many students write 7. things like, 'the amount of oranges,' when, prescriptive 8. grammar would say, 'the number of oranges.' And not 9. 'less functions' but 'fewer functions.' But you know, we 10. have to accept that this distinction is starting to 11. collapse, if it hasn't collapsed already. Languages are 12. organic and they evolve and change.	*Exemplifying* *Introduction of incidental new academic concept*
ME1	

This last example reinforces the observation that Stephen promoted dialogic teaching by creating an IDZ based on organic *obuchenie*, where the teaching/learning dialectic can be understood twofold: teaching that leads to learning and learning that leads to teaching. Also noticeable was the fact that the instructor actually becomes a learner while teaching. Regarding this, Stephen made a very interesting observation during the SSVI when he shared an anecdote and a reflection:

> This one student who is very bright but very forthright and asks these difficult questions asked me about the distinction between 'intelligibility' and 'comprehensibility.' I hadn't heard there was a distinction and I said "Well, I'm not quite sure but I think that the

> difference is this, that or the other." I was sure it was wrong but people seemed satisfied for the time being. Then I checked. I didn't get it completely right and I didn't realize until much later, when I was teaching another course, that I had actually got it wrong. I'm still grappling with it and my understanding is still very, very fuzzy. I guess I will need to run it through many other courses where it becomes relevant so as to fully grasp it and it starts to clarify. **(SSVI, 56:17).**

In particular, the last two sentences of the quote above indicate that in teaching, Stephen was also learning and he did not see this either as negative nor as counterproductive as he explicitly stated his intention to continue exploring this issue in the future. This future orientation towards his own development also attests to the fact that he conceived of teaching as *obuchenie*.

5.4.2 – Stephen's contingent scaffolding during online Discussion Boards. Of all the scaffolding formats identified in the data, some appear most prominently connected to a particular context. It stands to reason that during dialogic face-to-face teaching, questioning formats would be used extensively, as it appeared from the data presented so far. However, not all contexts allowed for the same scaffolding format to be implemented in equally effective ways.

When observing Stephen's interactions in the online context, the nature of scaffolding as well as the formats it took changed significantly from those in the on-site face-to-face environment. This may have been caused, as we will see later, by the medium used rather than by Stephen's own actions. In this respect, he observed:

> Online scaffolding is not teacher-initiated as it is in the on-site context. Scaffolding online it is more given by the system or the design of the tasks or in the succession of the online tasks and activities that you propose. In a way, we could say it is even less responsive and it is the response to their postings that really makes it interactive. **(SSVI, 00:07:28)**

This opinion notwithstanding, the data provided evidence that this may not necessarily be the case, as Stephen implemented a wide range of dialogic scaffolding

moves, as can be seen in the following table, Table 5.6, which summarizes the formats and functions of the scaffolds used by Stephen while teaching online.

Table 5. 6 – A summary of formats and functions of Stephen scaffolds during Discussion Board forums

Themes	Online Discussion Board	
	Format	**Function**
Macrocomment	Quotation	Orient students towards the new scientific concepts.
Activation of students' background knowledge	Question	Problematize the quote
		Activate background knowledge
	Confirm answer	Flag error
		Redirect to scientific knowledge
	Confirm answer	Reinforce scientific knowledge
		Exemplify
		Redirect
		Acknowledge
	Appropriate students' discourse	Extend scientific knowledge
		Exemplify
Introduction of the new scientific concepts	Quotation	Problematize new scientific concept
	Appropriate students' discourse	Clarify
		Demand scientific concept
	Appropriate students' discourse	Acknowledge
	Appropriate student's discourse	Clarify
		Redirect
	Question	Redirect
		Explain
		Suggest source
	Appropriate students' discourse	Expand
		Explain
	Appropriate students' discourse	Acknowledge
		Exemplify
		Explain
Exemplification of the new scientific concepts	Question	Acknowledge
		Reference previous work
		Exemplify
		Expand
	Appropriate students' discourse	Explain
		Quote
		Exemplify
		Focus on scientific concept
Comprehension check of the new scientific concepts	Question generated by student	Clarify
		Explain
	Appropriate students' discourse	Clarify
		Exemplify
		Question
Application of the new scientific concepts	Appropriate students' discourse	Acknowledge
		Clarify

Themes	Online Discussion Board	
	Format	**Function**
	Confirm	Flag example
	Question	Open up discourse
	Confirm	Explain
		Extend
	Appropriate students' discourse	Redirect
	Recap	Explain
		Exemplify
		Summarize
Reinforcement and extension of the new scientific concepts	Appropriate students' discourse	Acknowledge
		Extend
	Question	Problematize
		Redirect
	Question	Clarify
		Redirect
		Problematize
	Confirm	Acknowledge
		Explain
Readiness probe for independent work	Appropriate students' discourse	Acknowledge
Assignment	Quote with a brief explanation and guiding questions and instructions for a task	Orient the application of the new scientific knowledge.

The two most noticeable scaffolding formats implemented by Stephen in the online environment were his appropriating students' discourse and his confirming students' answers. These two actions served a variety of scaffolding functions. I will now analyze these by referring to data from the transcripts of the Stephen's interaction with students in online Discussion Boards (DB), his retrospective reflections on his participation (RI) as well as comments he made during the semi-structured validation interview (SSVI).

The online course consisted of presentational materials (readings, videos, presentations), individual reflection tasks, discussion boards, and individual assignments. The discussion boards were set up in a way that allowed many of the phases of the on-site lesson to coexist by posing different tasks. The following phases were the ones where the formats above were most readily observed: the activation of students' background knowledge, the introduction of new scientific concepts, the exemplification of the new scientific concepts, and the application of

new scientific concepts. In the online environment, the reinforcement and extension of the new scientific concepts was given as an individual task and merged with the readiness probe. The end-of-module assignment, as explained in 5.2.5, had a dual submission policy intended to provide one further scaffold.

5.4.2.1. Appropriating students' discourse. In traditional I→R→F exchanges it is common for teachers to appropriate students' discourse as either a way of echoing their ideas or in order to recast them in order to offer correction (Lemke, 1990; Mehan, 1979; Wells, 1993).

The appropriation of students' discourse by Stephen served more than those two purposes in that it actually opened up discourse for students through the mediational moves that ensued the appropriation. In this sense, it could be said that the format of the mediation deployed a sequence of mediational operations used to ascertain attainment of the motive of the activity, i.e. appropriation of the new concepts by students.

The first thing that becomes evident from the data is that Stephen used this move in order to add a degree of interactivity to the online medium. Regarding this he observed

> There's another one here, a question asked by a student "Can there be different registers in the same genre?" And so, I cut and paste that question, because that's a direct question, to the group or to me so I hold off for a while or I jump right in and intervene, just like I would in a face-to-face lesson (**RI, 00:46:05)**.

This depiction of his preferences for online teaching is once again evidence that Stephen advocated for a dialogic approach to teaching, regardless of the material context in which he interacted with students. Even when there were limitations posed by the medium (lack of face-to-face interaction, asynchronous nature, delay in interactive moves in online teaching), he still sought to promote opportunities for students to work collaboratively, while at the same time admitting

that he considered this interaction similar to the one that would ensue in an on-site class.

One clear example of the quote above is his appropriation of a student's question in an online discussion about analyzing texts for teaching purposes during the reinforcement and extension phase of the module:

	Data sample	***Function it fulfilled***
1.	Stephen: Bob writes: *"a person may want to read and*	*Appropriate student's discourse*
2.	*may try to read, but if they simply aren't there yet with*	
3.	*the language it would possibly take all day to get*	
4.	*through a couple of paragraphs."*	
5.	Stephen: Yes, this is a good point, and it can be de-	*Confirm*
6.	motivating to 'fail' in this way.	*Expand*
7.	Is there a case, therefore, for simplified versions of...?	*Redirect (to group)*
8.	literary works?	
9.	Bob: "If they are used in the classroom how do we	*[Student poses question]*
10.	deploy that as a teaching strategy?"	
11.	Stephen: Good question, Bob. Any tips/pointers from	*Redirect (to group)*
12.	anyone?	

DB4

This is a good example of an interactive instance of the enactment of this particular scaffolding in that by appropriating the student's observation, Stephen was highlighting its relevance for the benefit of the whole group. He confirmed the relevance of the observation (line 5) and expanded on it, contextualizing that expansion to the classroom (lines 5 - 6). He then redirected the elaboration of the concept to the group (lines 7 – 8), only to be met by another question by the student (lines 9 – 10), which he promptly redirected to the whole group again (lines 11 – 12). In this way, he is using the various mediational moves in order to increase the prospectiveness of the students about the new academic concept.

However, he admitted to a limitation in the use of this particular scaffold that has forced him to intervene more often than he would prefer to. Ideally, he wanted to wait for students to answer the questions they, themselves, pose but this was not possible sometimes because of the limitations of the context of mediation:

> One of the constraints of the discussion boards apart from the fact that they do not happen in real-time is the fact that people post at the very last minute and there is really no time to do the nice scaffolding I like to do like bouncing off questions to the students and having them lead the discussion so, I just need to jump in and say "Well, I have to explain here; there's no time for them to engage in dialogue, to be throwing things back and forth" but I would prefer to throw things backwards and forwards **(SSVI, 00:25:43)**.

From what appeared in the data, most appropriations of students' discourse by Stephen happened in the way that he has just explained, as shown in the following example from the Discussion Board on "Pragmatics":

Data sample	***Function it fulfilled***
"If you're an American in Japan, people will usually be very understanding of breaches of etiquette, and I think that's mostly true of Americans as well."	[*Stephen quoted what one student had contributed thus appropriating his/her discourse]*
That's true (one hopes!). What's more difficult to	*Confirming*
deal with is unfamiliarity - not so much with	
etiquette - but with 'scripts' - i.e. the way certain	*Introduce incidental scientific concept*
things are done in some cultures, including the	*Define incidental scientific concept*
way that language mediates these activities. In	*Exemplify by changing genres*
Philadelphia last week, for example, I ordered a	
drink at the hotel bar, and was asked 'Do you	
wanna run up a tab?' I more or less understood	
the 'script' here, but I'm not so sure that, say, a	
Russian or a Korean would - not only because the	
word 'tab' may be unfamiliar but because the	
'script' is not one they are used to.	
A great video for highlighting pragmatic	*Suggest resource to expand*
'breakdown' is that old series 'Third Rock from the	
Sun', about a family of aliens cleverly disguised as	
Humans. There's some great scenes – particularly in	
the first episodes – showing the failure to understand	
cultural norms, often those mediated through	*Redirecting to the scientific concept*
language. **(DB8)**	

In the transcript above Stephen took up an observation made by a student by quoting him – thus appropriating his/her discourse – and used the opportunity to introduce an incidental concept, that of "scripts." By engaging the students' observation he was given the chance to perform a series of relevant mediational

operations: first, he confirmed the student's understanding; he used this understanding to introduce the concept of script (line 3), which he immediately defined (lines 3—5); he proceeded to exemplify this new concept by changing genre from explanation to narrative (lines 5 – 12); next, he furthered students' understanding by suggesting a resource where they could see this concept in action (lines 13—17) and ended up by redirecting the exchange towards the original scientific concept: how language mediates cultural norms (lines 17 – 18).

5.4.2.2. Confirming students' answers. The second most frequent scaffolding format used by Stephen in the online context was his confirmation of students' answers. In the examples below there seemed to be an explicit intention to make those confirmations particularly positive, even if, in essence, he ended up contradicting, modifying or expanding the contributions of the students, as in the following example:

Data sample	***Function it fulfilled***
…that means that there are different registers in the same genre.	
1. Yes, great observation! I think this is what I was	*Confirming*
2. trying to say, with reference to the notion of	
3. genre 'colonies'. It seems to me that the one	*Re-confirm student's opinion*
4. genre (or colony of genres) can accommodate a	
5. range of different register variables. For	*Exemplify*
6. example, an academic paper about economics	
7. will share features of one about physics, but	
8. clearly the 'field' is different in each case. The	*Problematize the scientific concept*
9. question is, I guess, to what extent can these	
10. register variables vary before the genre no	
11. longer becomes recognizable? Or generic? And	
12. this perhaps throws the concept of genre into	
13. disarray. Maybe it's best to think of genre as a	*Suggest alternative*
14. 'constellation' of variables, not all of which are	
15. shared by all its members. A bit like the notion	*Exemplifying*
16. of 'game' - we all know what a game is when	
17. we see it, but we would be hard-pressed to say	
18. that chess, hide-and-seek, and football have a	
19. lot in common. **DB10**	

The data sample above shows how Stephen used confirmation to expand on the scientific concept under discussion. He confirmed the student's observation that one genre can have different registers (lines 1 – 2); he then reconfirmed it by appropriating the concept and giving his opinion (lines 3 – 5); he provided an example to illustrate his point (lines 5 – 8) and immediately problematized the concept (lines 8 – 13) by providing a counterargument to the student's observation. He also provided an alternative vantage point to this about the concept (lines 13 – 15) which he illustrated with an example from everyday life (lines 15 – 19).

This particular move increased the prospectiveness of the dialog among students as they had both a student-initiated understanding of the scientific concept and an alternative scenario to think about provided by the teacher. In this way, Stephen introduced an element of disruption in students' ongoing understanding of the new concept, one which forced them to think and thus come up with a better-informed answer. This exchange in particular happened during the application of new concepts phase of the lesson, where interaction was oriented towards transferring control of the new concept over to students. The questions posed do not have a single, correct answer but acted as a vehicle for elaboration on the part of students as they needed to probe into the data they had in order to come up with an answer.

Regarding his choice to problematize students' answers, Stephen observed:

> I need to problematize the concepts; a lot of them come with this kind of mishmash of background knowledge gained through their initial teacher training. They have these preconceptions which might not necessarily be wrong but which we need to bring out into the open. And similarly, I guess, with their background knowledge of syntax. They have kind of grade school knowledge of English grammar and this is why we are not covering the actual scientific concepts exploring them from the get-go. **(SSVI, 00:14:12)**

Once more, Stephen pointed to how his enactment of scaffolds is based on solid theoretical principles about his conception of teaching and learning as well as

his students' prior experience and backgrounds. Within a Sociocultural perspective, guided exploration of concepts is a form of mediating students' understanding. This was the case with the introduction of an intentional disturbance at a moment in the development of the module where the focus was on co-constructing knowledge both between teacher and students and among students. His validating the student's answer but problematizing it, seemed to indirectly indicate to students that they had not yet grasped the new concept fully so that problematization became a key mediational action in this particular context as it would have students reassess their understanding and probe into the concepts at a deeper level.

5.4.3 – Stephen's contingent scaffolding in the feedback on assignments written by students. Similar kinds of actions were also identified in the feedback Stephen gave on the first draft (for some of them a final draft, if no serious problems are spotted) of his students' end-of-module assignments. As it was explained in section 5.2.5, end-of-module assignments took the form of authentic performance tasks, or blueprints for the elucidation of whether students had appropriated the new scientific concepts in the module and could apply them to the solution of problems that teachers are confronted with on a daily basis.

Stephen considered the assignments an ideal vehicle for scaffolding. He said:

> It's not like challenging the weak and sometimes "I don't understand what you say here. Can you rephrase that?" More often it is correcting errors of fact: the definition of a gerund, or "We don't use the term conjugation but inflection," and they give me a chance to refer them back to the course, the readings, the discussion boards, the discussion board summaries. It's a lot more work, yes, but it offers many more affordances for them to get the concepts. **(SSVI, 01:02:15)**

Table 5.7 summarizes the different formats and functions of Stephen's feedback to students on the first draft of their assignments. In order to preserve the anonymity of the students and also of the participant, I have only extracted the comments made by Stephen on those drafts but not the actual text produced by

students. Following the table, I present an analysis of two feedback moves frequently used in the feedback on assignments: acknowledging and explaining.

Table 5. 7 – A summary of formats and functions of Stephen scaffolds in his feedback on students' assignments

Themes	Online Discussion Board	
	Format	Function
Macrocomment	Acknowledge	Affirm performance
	Acknowledge	Expand
	Acknowledge	Affirm
	Explain	Flag limitations
	Appropriate students' discourse	Expand
	Appropriate students' discourse	Reinforce scientific concepts
	Question	Flag errors
	Explain	Redirect
	Explain	Clarify
	Explain	Reinforce scientific concepts
	Appropriate (missing) students' discourse	Reinforce scientific concepts
	Acknowledge	Redirect
	Appropriate (missing) students' discourse	Reinforce scientific concepts
Activation of students' background knowledge	Not applicable	Not applicable
Introduction of the new scientific concepts	Not applicable	Not applicable
Exemplification of the new scientific concepts	Not applicable	Not applicable
Comprehension check of the new scientific concepts	Not applicable	Not applicable
Application of the new scientific concepts	Not applicable	Not applicable
Reinforcement and extension of the new scientific concepts	Not applicable	Not applicable
Readiness probe for independent work	Not applicable	Not applicable
Assignment	Quote with a brief explanation and guiding questions and instructions for a task	Orient the application of the new scientific knowledge.

All assignment feedback took two forms: a) a macrocomment providing an overall assessment of the work, and b) in-line feedback and comments.

5.4.2.3 – Acknowledging. The assignment for Module 5 had students write a short piece (2,500 words) on the Lexical Approach (Lewis, 1993; 1997) as if it were an introductory theory-to-practice article to be included in the newsletter of a local English Language Teachers' Association.

I selected the work of one student, Melville (pseudonym) to highlight how Stephen acknowledged the student's product:

Data sample	***Function it fulfilled***
(1) Thoughtful, well researched	*Confirm positive aspects*
response to the question. The article has an	*Confirm positive aspects*
appealing title and the information effectively bridges theory and practice. Well done!	
(2) Fair point, although a corpus linguist might argue that it is also a distinction that derives from how (used) language is best described, irrespective of its acquisition or use – that is, in terms of probabilistic combinations of words. But, of course, it's a short hop to argue that these combinations reflect the way that language is instantiated in the mind, which in turn is a function of the way it is used.	*Redirect to course contents*
(3) Yes, the link with Audiolingualism is sound, but a 'sentence grammar' view of language has outlived it	*Clarify*
(4) well summarized, (6) correct, (7) well noted, (8) correct, (9) well summarized, (10) good point, (12) well-argued and exemplified, (13) fair point,	*Affirm*
(5) and the various constructions it enters into.	*Affirm and expand by appropriating student's discourse and completing it*
(11) good example, and also 'also' 'yet' 'otherwise' etc., etc.	

This was a fairly good assignment and received a high grade with no need for resubmission. Nevertheless, Stephen extended his scaffolds by very precisely referencing course contents (2), clarifying (3) and also adding to what the student had produced, thus expanding the scientific concept (5 and 11).

There were many affirming moves (4, 6, 7, 8, 9, 10, 12, and 13) in this particular paper. Given the discussion above, and Stephen's intent in providing a dual submission policy for every assignment, the brevity of the confirming moves might be interpreted as an instance in which Stephen found evidence of a growth point. It could also be interpreted as confirmation that the student had *used* a certain scientific concept correctly or as confirmation that Stephen agreed with the student's ideas. Nevertheless, in the context of this analysis and given the explanation that Stephen himself provided of how he implemented scaffolding

moves in his feedback on assignments, the first interpretation, that he found a growth point, seems plausible.

Nonetheless, what is perhaps more interesting is how the feedback provided sustained the dialogic mode. Even when the feedback presented here is decontextualized from its original source, we can see Stephen "dialoguing" with the student. This is noticed particularly in moves 5 and 11 where Stephen affirmed by indirectly appropriating the students' discourse and completing it, just as would happen in a conversation.

5.4.2.4 – Explaining. This dialogic disposition was also seen in work that was not quite up to standard. In the following excerpt from the feedback on an assignment where students had to read a chapter on phrase and sentence grammar (Yule, 2006) and consider the practical implications of those theoretical ideas to the language classroom, Stephen deployed various examples of explanation to mediate the student's rewriting of the piece:

	Data sample	***Function it fulfilled***
1.	[1]: A fair attempt to capture a rather dispersed	*Confirm positive aspects*
2.	discussion, showing a growing understanding of	
3.	the key concepts outlined in the article, although	*Identify of point to improve*
4.	perhaps you spend more time on discussing the	
5.	problems of applying these concepts in the	*Flag limitation*
6.	classroom at the expense of elucidating them, e.g.	
7.	with reference to the sample sentence pairs.	
		Flag area to improve
8.	[2]: I think so … but Yule does try to demonstrate,	*Clarify and reinforce*
9.	through his practical activities, how the concepts	*scientific concepts*
10.	that he elucidates might impact on the design of	
11.	tasks.	
12.	[3]: yes, and to use this knowledge to critique	*Clarify and reinforce*
13.	some of the 'traditional' approaches to teaching	*scientific concepts*
14.	the verb phrase, especially the idea that choice of	
15.	tense and aspect is purely conditioned by	
16.	temporal factors.	
17.	[4]: correct – and this is one of the 'traditional'	*Affirm and clarify through*
18.	fallacies that I was referring to above.	*an example*
19.	[5]: correct	*Affirm*

20. [6]: OK… this is the temporal meaning of 'remote' *Clarify and reinforce*
21. – but 'remote' can also mean 'remote in reality' *academic concepts.*
22. hence the use of past tense forms to talk about
23. hypothetical situations: If I was president…

24. [7]: well, we need context to fill in the details, but
25. the point that Yule is making is that the parts do *Clarify and reinforce*
26. add up to make a composite meaning – a meaning *academic concepts.*
27. that has implications that need to be checked
28. against the context.

In this excerpt Stephen used the mediational action of explaining through operations that flagged areas to improve (line 3) up front in the macrocomment. He also flagged limitations (line 4) and areas to improve (lines 12 – 16), and clarified and reinforced the scientific concept (lines 17-19=8, 20 - 23 and 24 – 28) that the student failed to appropriate, thus providing a launching pad for a second attempt at the task, one which would be more focused on the scientific concept. Stephen explained his feedback strategy with its elements of explanation thus:

> Well this was giving feedback on an assignment, so what I like to do is start by providing an overall appreciation of their work so they know, right from the start that I try to point out either what they have done well but also pinpoint problems they seem to be generally having. So, I'm using this as a kind of opportunity to build on their existing knowledge, I guess, but also to bring to bear relevant course content which students do not seem to have quite gotten yet. **(RI, 00:13:07)**

Then, during the semi structured validation interview, he contributed this comment about his feedback strategy:

> I think I write so many and detailed comments because of what I call intersubjectivity, which I found in some of the translations of Vygotsky. This was a concept I had trouble understanding, but once I did, it became incredibly important to me because, although we've been talking about my feedback to students, that's how I know when they have learned so that I move on. I think that intrinsic to that is this concept of intersubjectivity, the ability to put yourself into their shoes, their position, and see how they are understanding this that they are receiving from myself and from each other **(SSVI, 01:12:04).**

Once more Stephen emphasized his dialogic disposition and, in particular, he revealed that it was by putting himself in the students' position that he ascertained they had reached the desired growth point. More importantly, this quotation brings to bear a key sociocultural construct, that of shared cognition, a characteristic of dialogic teaching instantiated through the development of the IDZ. It is only when the teacher can represent the cognition of their students in his/her own cognition and the students can represent the teacher's cognition in their own that the IDZ can open as a space of shared construction. Stephen hinted at this co-construction when speaking about "putting [himself] in their shoes."

This disposition he verbalized also directed my attention back to the concept of *perezhivanie*, as that shared cognitive-affective space is needed for co-construction. It stands to reason that, if the cognitive space is enabled then, given the cognitive/emotional dialectic of *perezhivanie*, the emotional space is also established. This becomes externalized through the reciprocal and intentional interaction of mediator and mediated.

In this sense, the data presented so far intended to instantiate how Stephen's mediational efforts both designed-in and at the point of need responded to the characterization of the organic MLE depicted in Chapter 3.

Data have shown that the scaffolding actions and their associated operations created reciprocity and were entered into intentionally by Stephen and his students. Closely related to these, meaningfulness was carefully designed-in and enacted through a dialogic approach to teaching scientific concepts which, once appropriated by students, would become key conceptual tools that would guide their professional practice. Besides this element of transcendence, the scaffolds were multimodal both at the designed-in level (through pictures, for example) but also during contingent online scaffolding. As an interesting fact, Stephen indicated that some of the online things he used to do in writing he now does through video. He said:

> They've done the discussion and then I do a summary of the main points. I used to do them in writing but now (well, not always because sometimes it is useful to do them in writing) I do them as a video thing. It is still discursive and unscripted but it is still a kind of wrap up. Students seem to like it, possibly because it's video and people like having a summary. **(SSVI, 00:34:41)**

Finally, the social to individual orientation is evidenced particularly through the engagement of students' understanding of how the new scientific concepts become teaching tools in the language classroom. Stephen provided two relevant comments about this. First, when asked about his use of quotations from the professional literature as a form of expansion of students' understanding, he said:

> So, the quotations, in a sense, help ground what I'm saying in the academic research, even if I haven't done any research in that particular area. But also, I think, I think it's important to show them that we're not here just talking about, you know, my opinion, and your opinion – we need, we do need to appeal to the people who have done research in this and that's the whole tenor of what a Masters should be about. **(RI, 00:38:01)**

He also justified his choice to include this social-to-individual orientation on the basis of Vygotskyan theory which, incidentally, is very pertinent to the present discussion. He observed that in his courses:

> We are building not just a conceptual base but also an identity, a professional identity. I think both things go hand in hand, it's about this Vygotskyan distinction between every day knowledge and scientific knowledge. So, we are taking these lay concepts and terms, we're replacing them with professional terminology. First of all, it's more accurate but also because it's part of the professional knowledge base, it's a characteristic of the discourse of teachers. You need to be able to talk the talk and not just walk the walk so loads of it is about the meta-discourse or the metalanguage of the profession. **(SSVI, 01:07:37)**

Having analyzed Stephen's designed-in and contingent scaffolding moves across contexts, the question remains as to what affordances the on-site and online contexts present Stephen for mediating his students' appropriation of the scientific

concepts. In the next section, I will present data to substantiate my analysis of these affordances.

5.5 – Affordances and constraints of the online and on-site environments

This section presents the answers found in the data to research question # 2, regarding the affordances that the online and on-site environment offer for enacting organic mediation along the lines of Stephen's scaffolding, as depicted before in this chapter.

One initial answer can be found in the quantitative analysis performed on the data using the concordances program. Of the 92 mediational moves analyzed, frequencies varied for each of the contexts analyzed.

In the on-site context, questioning occurred in 42% of the mediational episodes analyzed, while flagging examples appeared in 16% of those episodes, with recapping and confirming answers both occurring in 12% of the total episodes.

In contrast, in the online environment, the most frequent move, appropriation of students' discourse, occurred in 31% of the mediational episodes, followed by confirming answers and questioning, both appearing in 17% of the episodes. What is interesting about data for this context is that moves such as acknowledging, explaining, quoting, and recapping occurred only in 6% of the moves, whereas flagging examples, nominating students, and redirecting to the anchor text did not appear.

One note about recapping is in order. From Stephen's explanation of discussion board summaries which appears in the previous section and is identified as stemming from the SSVI at 00:34:41, I learned that Stephen provided weekly written summaries of the discussion boards that he sent to students' email as a word document that they could reference when studying or writing assignments. During data collection I was not privy to that information; that is why, it was not coded.

On surface it appears a common-sense assumption from the data above that there are obvious advantages to the on-site environment. One obvious advantage is that its synchronous nature offers more opportunities for interactive dialogic teaching through I→R→F question-and-answer sequences, whereas the lack of synchronicity proves to be a disadvantage in this respect. Because of this, appropriation of students' discourse in the online environment is the most commonly used mediational move. However, given the interpretive nature of this enquiry, and the SCDA frame of analysis adopted, we need to refer to Stephen's perceptions about the affordances of each environment.

Stephen's perceptions of the affordances of each context of mediation focused on the overall parallelism between the course offerings in both contexts, the consistency of his approach to teaching, the difference in the nature of the interactions, and the quality of the questions asked in each environment.

5.5.1 – Some affordances of the online environment. He considered that one of the affordances of both contexts was that they allowed him to deliver the same quality provisions. About this he noted:

> I think the basic approach doesn't change, in the sense that, apart from anything else, there is a natural constant because we're using the same materials, and we're using the same syllabus although not necessarily, with the same weight perhaps in the online. But I think the quality is the same, that's a constant – the quality, the materials and the curriculum. **(RI, 00:44:16)**

He confirmed that another affordance of both contexts was that they allowed him to implement the same approach to teaching. He explained:

> And I think the approach is essentially the same, as I said before, we work from data, we draw out principles, we do all this collaboratively, and we apply the new concepts to the classroom. **(RI, 00:45:02)**.

5.5.2 – Some constraints of the online environment. In contrast, he identified constraints in the online environment. He reflected:

> The quality of the interactions is different because of the a) the time lag and b) everything is done in writing; all the discussions are done on the discussion boards. So that changes things a lot. And also, it determines the nature of my own intervention. So, for example, take eliciting, I guess it's a technique I overuse in the classroom – um, to a certain extent trying to pull stuff out of them, or, working from a text – try and get them pulling stuff out by asking leading questions, leading questions, leading questions. That leading – that questioning, eliciting, kind of approach –it's not that it's not possible online, it's just different because you're asking questions on the discussion board. You might throw a question out on the basis of what somebody else has said in response to a task. But, if you look at all of my interventions on the discussion boards, you won't find that that many of them are kind of eliciting kinds of questions. **(RI, 00:48:23)**

In the quote above Stephen identified what he perceived as the limitations of the online environment because of the medium used for communication: writing. He saw that as limiting his ability to freely interact with students. Admittedly, this could be looked at from a different perspective. As he confessed to "overusing" this questioning technique, what he perceived as a limitation of the medium could be posited as a limitation in his ow pedagogical ability. He had made a similar point in the quote on the constraints posed by discussion board which did not allow him to "throw things backwards and forwards" (SSVI, 00:25:43) in section 5.4.2 and I wonder whether this was a realistic expectation for the medium. However, taking Stephen's decidedly dialogic mindset towards teaching, I lean towards agreeing with Stephen in that the online medium poses constraints to the effective use of questioning given the time lag because, according to him, the nature of the medium affected not just the nature of his intervention but also their frequency.

5.5.3 – Some constraints of the technology used in the online environment. Stephen made a clear complaint not about the online environment but the technology used to access it. Nowadays, most LMSs have apps that allow students to work from their smartphones. However, when working with that technology, there are many things which are lost and which can cause frustration. Stephen explained:

> If they are using their cell phones, for example, things that you thought were clear from them, points you had made through your detailed comments on their postings or assignments, and you get to the final assignment and see it and think "Where did this come from?" In the on-site course I would not worry because there is an immediacy where you can make the necessary corrections at the point of need, but when you expect that, because of your very precise comments and advice online, there will be less slippage, and you find not one of your points has been taken up, you panic. It really distresses me. And there are two possibilities. One, they have not really accessed the materials. Two, and this is the most frequent nowadays, they are working from the cell phones and cannot see my comments. **(SSV 01:15:38)**

Hence, the evidence presented here does not address the limitations of the environment per se but those of the technology used to access it. Even when Stephen surmised that this was the case, it should be acknowledged that the medium used by students to access mediation did not prove effective and that the technology used actually hindered what Stephen would consider the habitual development of the course. As the various scaffolds that Stephen implemented were not evident to students because of the limitations of the technology they were using, we can conclude that this technology did pose a limitation on the affordances for learning that students had at their disposal. Conversely, it also posed limitations on the instructor's ability to provide the desired scaffolds at the point of need. However, Stephen managed to overcome the limitations of the medium, just by being aware of its existence. Even when he did not expressly acknowledge it, we could assume that he would take measures to counteract it.

5.5.4 – Some constraints of the on-site environment. Stephen also found constraints in the opportunities for direct interaction with his students. In particular he referenced the authenticity of the questions he posed during interactive teaching. Regarding those questions, he analyzed:

> They're not display questions. I'm not trying to find stuff that they know. If I'm asking a question- actually, that's a significant difference. When I'm asking a question online, it's usually a real question, in the sense that I'm interested to know what you think about this. I

> don't know what you think – I don't even know what I think. Whereas in the classroom, I think a lot of them are display questions which I know the answer and I'm just trying to pull the knowledge out from them. So, maybe that's the significant difference – I hadn't thought about that, maybe that does qualitatively differentiate the kinds of interaction online and on-site: more display questions on-site, more real questions online. **(RI, 00:51:02)**

5.5.5 – From constraints to affordances both in on-site and online environments. In contrast, during the SSVI his concern with his use of the I→R→F sequences seemed to disappear as he made a case for the use of the sequence when dealing with content other than language. He also found that this sequence seemed to work in the online environment

> Yeah it is classical IRF. It is funny that when I am looking at language classrooms I am very critical of it but in the teacher education classroom I think it makes sense. It's funny that as a teacher trainer I am often coming down on students saying "No, that's not what you should be doing. Ask real questions!" Then, in my training sessions I use the same structure and it seems to work much better. I guess this is because we are not trying to learn a language but we are dealing with content. We're actually trying to co-construct a knowledge base often from zero but with this participatory way of doing it through this kind of question-and-answer sequence. And, the same paradigm is working not just in the face-to-face sessions but also in the assignments with their two-step process, and the work on the discussion boards: teacher-initiated tasks-students' response-teacher feedback and the cycle continues as long as we've got time for it **(SSVI, 00:57:11).**

Stephen's discourse consistently evidences his dialogic orientation and his conceptualization of teaching as *obuchenie*. Just as it happened with other data, Stephen tended to talk in plural when referring to his teaching, thus including his students in his depiction of all actions. Additionally, he intentionally referred to learning as a co-construction. In that context, an approach to teaching that fosters dialog between instructor and students, such as the I→R→F sequence, appeared particularly suited to Stephen's intention. He extended the interaction metaphor also to the feedback he gave on assignments, as well as to the organization of the discussion boards.

Seen in this light, both environments offer the same affordances. What determines whether the affordances become actual tools is the purposeful enactment of organic mediation based on those affordances. Stephen's approach to teaching is one such tool that holds the potential to turn the affordances of the various environments into actual mediational episodes. In Stephen's case, and given the data presented so far, we can say that those affordances have actually crystalized.

5.6 – Summary of Chapter V

The data presented helped answer the two research questions. In the next chapter I will provide a comparison of the two embedded units in this case study by analyzing how mediational activity evolved or changed through the purposeful use the mediational formats and their functions.

CHAPTER VI – DISCUSSION OF FINDINGS

6.1 – A case of complex dialectics

The purpose of this chapter is to provide a discussion of the key findings in this study by attempting to answer the research questions while indicating how the findings in the study compare to the theoretical tenets presented in Chapter III, as well as indicating the potential of this study to enhance the understanding of mediation in on-site and online environments.

In order to answer the research questions, I will use interpretations of the data emanating from SCDA supported by the filter of CHAT which allowed me to organize findings at the level of activity, action and operation. I will start by discussing the designed-in and contingent dialectic of the acts of mediation seen in this study. Next, I will characterize how activity changed when the medium for mediation changed. I will then address how these influenced the way in which Stephen enacted *obuchenie*, or the teaching/learning dialectic. I will conclude by briefly discussing other emerging issues that surfaced from the data.

6.2 – Designed-in and contingent mediation

The framework for identifying MLEs discussed in Chapter III pointed at several characteristics of what I have chosen to call an organic MLE. Namely, these included intentionality and reciprocity, transcendence, meaningfulness, contingent multimodality and social-to-individual orientation. The data analyzed showed how these characteristics were brought to bear by Stephen at different points of the courses he taught.

The way Stephen set up his designed-in scaffolds attested to his intentionality in engaging *with* the students as well as engaging *the students*. He carefully weighed the potential level of difficulty of the various course contents against his

understanding of students' prior knowledge and experience, and developed a teaching sequence that would be meaningful to students while offering them ample opportunities for interaction among themselves, with the instructor and with the new scientific concepts.

At the contingent level, these intentional designed-in elements provided fertile turf for the development of an IDZ. The data showed how both Stephen and the students contributed to the various scaffolds the instructor put in place and how Stephen's mediational operations responded to his students' evidences of emerging understanding. This infused the interactions with an element of reciprocity that was most evident through students' attempts at appropriating the various scientific concepts that made up the course during interactive on-site teaching, through discussion forums, and through the first drafts of their assignments.

Meaningfulness permeated all of Stephen's actions. The intentional designed-in phase aimed at exploring students' background knowledge and engaging them in problematizations of the new scientific concepts was one key attempt at imbuing both the designed-in and the contingent scaffolds of meaning. This meaning, however, was not just provided, but it was co-constructed with students and among students. Hence, meaning was not a given, but a process of meaning-making, during which Stephen actively probed students' understanding and used that information to extend this understanding into a growth point. This can be seen most clearly in those mediational episodes where Stephen posed questions to students, or when he appropriated their discourse in order to increase the prospectiveness of the interaction.

During contingent scaffolding, Stephen evidenced a sensitivity towards students' meaning-making efforts that prompted him to constantly probe for students' understanding. This ongoing assessment of students' understanding took many forms as Stephen engaged in various mediational operations.

Transcendence was clearly seen at the designed in and contingent levels by Stephen not just concentrating on the course contents (the “here-and-now”) but always providing opportunities for students to apply those course contents to activities typical of the situations which a professional would encounter. In this sense, the horizon for Stephen’s mediation was not just the appropriation of the contents of the course, but he sought evidence of that appropriation as it related to the task of teaching. The authentic performance tasks in the end-of-module assignments were oriented towards this aspect, as was the section in the development of the modules where students were purposefully engaged in extending the new scientific concepts by working on tasks related to the actual world of teaching languages.

Contingent multimodality was evidenced mostly at the designed-in level, but with the intention to be played out during contingent mediation. This was done by Stephen intentionally providing alternative semiotic systems to language (pictures, diagrams, sounds, and illustrations) in order to ascertain that students constructed meaning around the key scientific concepts of the course but not just through language.

Finally, the social-to-individual orientation was ever present as the contents of the course effectively addressed the current understandings of the subject by practitioners and theoreticians in the field. The authentic language examples, the updated bibliography and the emphasis on working from evidence towards the principles were all efforts intended to ascertain that students would be ready to enter the world of teaching languages with the necessary pre-requisite knowledge.

Up to that point, the parallels between the on-site and online environments appeared as aligned to the framework for MLE. However, significant changes to mediational activity occurred as Stephen migrated from one medium to the other, which was reflected in changes in both actions and operations.

6.3 – Online vs. On-site activity

Stephen's mediational activity created various affordances for students to appropriate the new scientific concepts. The overall activity system allowed for various interactions among the constituent elements that made evident that Stephen was indeed implementing a Sociocultural approach to the education of these future teachers.

Even though we are talking about two different activity systems (the online and the on-site) and acknowledging that a change in one of the constituent elements of the activity would prompt a change in all others in a systemic way, the motive of mediational activity, in this particular case, remained stable. Hence, we can talk about permanence and change within these activity systems.

Permanence was evidenced in the stability of the motive (mediating the appropriation by the students of new scientific concepts they would use in their professional practice on a daily basis), whereas change was evidenced in various modifications to the constituent elements which are the result of a shift from the on-site environment to the online environment.

For example, the division of labor changed from the on-site to the online environment as students had to use writing to complete the tasks and this included the use of specific rhetorical features of the academic genre.

This modification alone prompted a transformation in the activity which also prompted a change in the actions that were implemented and, consequently, in the operations that constituted the script of those actions.

In the contingent delivery of the course, mediational activity was provided by Stephen through specific actions, which, when enacted, triggered various

operations. As could be seen from a comparison of frequencies (see Table 6.1 below), the occurrence of these actions varied significantly depending on the context in which they occurred. Frequencies attest to the presence of an action, though they do not show what that action actually sought to achieve. For that, we need to access the operations level of the activity, which provided the function to which the actions were put. Hence, Stephen's role as informed decision-maker and intentional mediator became extremely relevant as he was the one who gauged what he got from the students and chose which action, and within it, which operations, to prioritize. He admitted that it was not the action that guided his decision-making, but, actually, the answer he obtained from students when implementing that action (see Section 5.4.1 under Questioning) that guided what he would do next. Table 6.1 compares the frequencies of all mediational actions spotted in the analyzed episodes both online and on-site. The shaded lines show the actions that were implemented in both the on-site and online environments, albeit with different frequencies.

Table 6. 1 – A comparison of the frequency of online and on-site scaffolding actions

On-site environment		Online environment	
Mediating action	**Freq**	**Mediating action**	**Freq**
Question	42%	Appropriating students' discourse	31%
Flag examples	16%	Confirm answers	17%
Recap	12%	Question	17%
Confirm answers	9%	Quote and explanation and instructions	9%
Acknowledge	2%	Acknowledge	6%
Appropriating students' discourse	2%	Explain	6%
Explain	2%	Quotation	6%
Nominate students	2%	Recap	6%
Nominate session and topic	2%	Question from students	3%
Question from students	2%	Flag examples	0%
Quote and explanation and instructions	2%	Nominate students	0%
Redirect to anchor text	2%	Nominate session and topic	0%
Set the context	2%	Redirect to anchor text	0%
Quotation	0%	Set the context	0%

If, as proponents of CHAT affirm, actions are goal-oriented but short-lived, and operations are actions which have become routinized (Wells, 1993), then we should expect to see approximately the same actions enacted in both environments. After all, as Stephen explained, the quality, the materials and the curriculum remained constant across contexts, as did the motive of the activity.

In contrast, it can be seen that only eight of the 14 identified actions were enacted in both contexts, while five did not appear in the online medium. Because of the frequency of appearance, it could be argued that the occurrence of some of these scaffolds across the ten weeks of the on-site course conform some sort of routinized pedagogical repertoire as exhibited by Stephen. In this sense, these routine actions could well not be conscious, but the product of Stephen's own teaching tradition developed over years of teaching. This seems to contradict the CHAT cannon in that, at least in this particular case, it is not the actions that are conscious, but the operations, as Stephen himself explained during RI (00:36:24) which appears under section 5.4.1.1.

A factor to consider here, of course, are the limitations and affordances of the two environments, and Stephen concluded that these make his dialogic mediations difficult, though not impossible, and that the dialogic, interactive process of co-construction could be effectively undertaken in either context (see 5.5 under SSVI, 00:57:11). In other words, to Stephen, the context did not seem to stand in the way of attaining the object of the activity.

The table above provides other relevant instances for analysis. In both environments there are three actions that are implemented with a very high frequency. In the on-site environment these involve questioning, flagging examples and recapping, whereas in the online environment these entail appropriating students' discourse, confirming answers and questioning. These frequencies stem from codification of data comprising 10 weeks of study in each case, so they can be said to offer a representative sample of how Stephen enacted his mediation. In the on-site environment the most frequent move was highly dialogical with the other

two most frequent actions being more teacher oriented. In the online environment, the three actions can be categorized as dialogic as they were used to mimic the interaction characteristic of the on-site environment, as Stephen himself explained. However, understanding how these actions led to students' reaching a growth point where mediation by Stephen could be discontinued was not captured at this level, but at the level of the operations. To connect this discussion with the theoretical framework I made explicit in Chapter III, in order to gain a proper understanding of Stephen's enactment of *obuchenie*, we need to transcend the obvious format of the systematic actions he implemented and seek the function or purpose behind those actions. This can only be observed at the level of operations, as they break down the actions into goal-oriented steps that progressively build towards the activity of mediation.

6.4 – *Obuchenie* in Stephen's mediation

As explained in Chapter III (section 3.4.2) *obuchenie* refers to the teaching/learning dialectic. This is a multi-layered construct in that it may refer to the interaction between instructor and students, but also to the role of the instructor as a teacher-learner within a Sociocultural perspective.

Stephen's *obuchenie* was characterized by the enactment of a series of operations within each of the scaffolding actions he implemented. These changed with the environment in which he interacted, although the intentions he pursued remained the same.

In this sense, Stephen's *obuchenie* is an instance of what Vygotsky understood as this dialectic. Stephen's *obuchenie* was a form of mediation that occurred within an IDZ that he and his students created over the course of the ten weeks each course lasted. This IDZ required intentionality and reciprocity, which were achieved through a series of scaffolding operations that Stephen implemented in response to what he perceived his students' evolving understanding of the new

scientific concepts to be. However, while the actions remained stable, the operations varied significantly according to the environments where the courses were taught.

One clear example of how this happened can be found in the way that questioning action was enacted in on-site and online settings. In the on-site setting questions followed an interactive I→R →F sequence oriented towards opening up the discourse of students so that they could engage in co-construction of scientific concepts with the instructor. Questioning was applied in order to fulfill various functions. Among these: problematizing the scientific concepts, checking understanding, assisting students in recalling pertinent information, demanding from students the explicitation of a particular aspect of the scientific concept, directing students' attention to features of the scientific concept and reinforcing the scientific concept.

The tool used for mediation (activity) was a question (an action) directed towards a particular aspect of the object (the scientific concept). The question was bound by the rule that it should be answered by students. In that sense, labor was divided thus: the instructor asked the question and the students answered it. The community was brought to bear as students could answer from their own point of view, from the point of view of the instructor or from the point of view of the theoreticians they had studied.

However, when we changed the focus on the tool, changes in the activity began to surface. If, for example, instead of looking at a question used as a tool we included the operation, e.g. questioning to focus students' attention, then the whole activity changed. The rules expanded to include not just answering the question but answering it in reference to the particular focus. The community also changed in that the answer would require the involvement of just those community members that were relevant to the focus. The labor was also divided differently, as students did not just have to answer the question but they had to incorporate other levels of awareness in what they answered. In this sense, in this new scenario the only constituent element in the activity that remained unchanged is the subject.

We could posit that each modification in an operation opened up a different activity system. However, these new myriad activity systems were not independent. Instead, they were brought together by the intentionality of the instructor in deploying that particular operation.

This issue has two relevant corollaries. First, that mediational action, as evidenced by Stephen, is in line with a view of learning as moving within the ZPD (Engeström and Sannino, 2010). Second, contrary to what the cannon of CHAT would affirm, responsive mediation through teaching happened at an operational level and as a consequence of the individual's intentional decision-making.

Regarding the first corollary, if learning is what prompts the emergence of various ZPDs (Vygotsky, 1978), then the identification of a growth point by Stephen was what led him to sustain his mediation or phase it out. In this sense, mediational activity could be best understood not by referring to Engeström's (2001) original triangular depiction of the activity system, but as a matrix like the one below where key questions may help answer how the tools (actions and operations) help chart the interaction between instructor and students, students among themselves, or even the instructor himself within the ZPD.

As an example, I will use one of Stephen's quotations already analyzed in Chapter V. In reflecting about the affordances and limitation of the on-site and online environments regarding questioning, Stephen said:

> They're not display questions. I'm not trying to find stuff that they know. If I'm asking a question- actually, that's a significant difference. When I'm asking a question online, it's usually a real question, in the sense that I'm interested to know what you think about this. I don't know what you think – I don't even know what I think. Whereas in the classroom, I think a lot of them are display questions which I know the answer and I'm just trying to pull the knowledge out from them. So, maybe that's the significant difference – I hadn't thought about that, maybe that does qualitatively differentiate the kinds of interaction online and on-site: more display questions on-site, more real questions online. **(RI, 00:51:02)**

Table 6. 2 – A matrix to map expansive learning through mediation in the ZPD.
(Adapted from Engeström, 2001, p. 138).

	ACTIVITY AS A UNIT OF ANALYSIS	ENVIRONMENT	ACTION: ASKING QUESTIONS	OPERATION 1: CHECK UNDERSTANDING OF SCIENTIFIC CONCEPT	OPERATION 2: DEMAND THE NOMINATION OF SCIENTIFIC CONCEPT
Who is learning?	*Future language teachers*	*On-site*	*Display questions*	*Students learn the scientific concepts*	*Students learn the scientific concept*
		Online	*Referential questions*	*The instructor learns what students know*	*Instructor learns whether students can name the scientific concept*
Why are they learning?	*In order to appropriate conceptual tools*	*On-site*	*Display questions*	*Because they need to be able to "grow" everyday concepts into scientific ones*	*Because they need to be able to accurately nominate the scientific concepts.*
		Online	*Referential questions*	*The instructor so he can decide on the next mediational move.*	*Because they need to be able to accurately nominate the scientific concept.*
What do they learn?	*Scientific concepts used in language teaching*	*On-site*	*Display questions*	*Scientific concepts*	*New terminology*
		Online	*Referential questions*	*Instructor learns what students know but also learns new ways of mediating action*	*New terminology and the purposes it serves.*

	ACTIVITY AS A UNIT OF ANALYSIS	ENVIRONMENT	ACTION: ASKING QUESTIONS	OPERATION 1: CHECK UNDERSTANDING OF SCIENTIFIC CONCEPT	OPERATION 2: DEMAND THE NOMINATION OF SCIENTIFIC CONCEPT
How do they learn?	*Either on-site or online*	*On-site*	*Display questions*	*Students: By providing answers that summarize*	*By answering with the correct scientific term*
		Online	*Referential questions*	*Instructor: By listening attentively to assess grasp of the new concepts by students. By implementing other mediational operations.*	*Students: By answering a question using a synthesis of their understanding.*

The table above depicts one example of Stephen's *obuchenie* in that it accounts for the different dialectics embodied in the operations. As I have explained above, the operations changed to suit the needs of the students. Even when teaching, the instructor was a teacher-learner who modified his actions in light of evidence of students' emerging understanding.

Operations made up the bulk of the mediational activities evident in the data and fulfilled an expansive function because, while the repertoire of actions was limited, variation in operations allowed Stephen and his students to achieve mediation in both environments.

A total of 29 operations were evidenced in the analysis of the data. All 29 were used in both contexts. Table 6.2 summarizes the use of operations:

Table 6. 3 – On-site and online operations in mediational actions by frequency

Operation	On-site frequency	Online frequency
Demand scientific concept	20%	3%
Pose problem	9%	8%
Summarize	9%	1%
Direct students' attention	7%	2%
Focus on scientific concept	7%	4%
Reinforce concept	7%	5%
Assisted recall	4%	2%
Clarify	4%	10%
Explain	4%	17%
Agree and encourage	2%	2%
Check understanding and lead	2%	2%
Engage students in activity	2%	2%
Exemplify and model	2%	2%
Introduce incidental concept	2%	2%
Orient students to new scientific concept	2%	2%
Orient the application of new scientific concept	2%	2%
Provide options	2%	2%
Review and reinforce scientific concept	2%	2%
Affirm	2%	17%
Activate background knowledge	2%	2%
Confirm correct answer	2%	2%
Exemplify	2%	17%
Expand	2%	4%
Extend	2%	6%
Flag error	2%	3%
Open up discourse	2%	2%
Quote	2%	2%
Redirect	2%	13%

As can be seen in the table above (and also in the summary table in Appendix D), all operations emerging from the data were used in both contexts. This was interesting in two ways. First, the repertoire of operations (functions) was more extensive than that of actions (formats) and thus offered more possibilities for combination and recombination since they were all present at some point in Stephen's mediation. Second, these functional moves stood in stark contrast with

the depiction of scaffolds presented in the literature review (see Chapter III). For example, Hammond and Gibbons (2005, p. 22) describe one form of scaffolding thus

> *Appropriating* – this refers to a bidirectional process whereby the teacher or the students take up the resources of others (ideas, discourse, wording, information) to fulfill their purposes—in the case of students—or to extend students discourse—in the case of the teacher.

This characterized the act of appropriation as somewhat fixed and stagnant. It failed to capture the complexity of the act of appropriating because it looked at the format and not the function. In the data analyzed in this enquiry, appropriation, specifically of students' discourse, was not always used by the instructor to extend students' discourse, but to fulfill a multitude of operations (explain, quote, redirect, exemplify, acknowledge and clarify, among many others).

In contrast, looking at an act of scaffolding and disclosing its structure (format, i.e. action) and the purposes to which it is put to use (function, i.e. operation) allowed us to capture the interactive flow of the mediational act. Each action comprising an activity system deployed a situated sequence of operations oriented towards the goal of the activity (i.e. to elicit a particular term or to focus students' attention of a certain feature of the scientific concept) that were a personal response by the mediator to the emerging representation that he made of the students' cognition within an IDZ. These sequences of operations were the level at which organic scaffolding took place, as they were imbued of all the characteristics of an MLE discussed before. However, and this is perhaps the most arresting idea I have derived from this enquiry, they could not be neatly classified or arranged in predictable sequences, as the attempts by Hammond and Gibbons (2005) or Walqui (2006) would have us consider. Instead, they attested to the fact that, in this particular case, *obuchenie* was an extremely situated and highly idiosyncratic construct that expanded both the students' and the instructor's knowledge as it got enacted.

Because no discernible, consistent patterns of operations could be observed, the idea that operations were more accommodating to the point of need than actions themselves could be advanced. In all fairness, it should be noted that neither could patterns of sequences be appreciated in actions. Nevertheless, some actions were more readily associated with particular moments of the lessons than others.

This lack of patterns allows me to advance the idea that, contrary to what is expressed in the literature regarding the routinized nature of operations, these were, in fact, much more dynamic, because they were emergent, as they offered the instructor a contingent tool to situate his mediation within the IDZ and, in consequence, the ZPD.

From this perspective, scaffolding becomes a form of *obuchenie* that is bidirectional, intuitive, intentional and highly situated. Learners are both the instructor and the students who engage in joint activity for which they need to create an IDZ that allows them to constantly shift their engagement in activity so as to accommodate the other's purposeful operations. This shift in engagement is oriented both at the mediation/appropriation of the learning targets as well as the introduction/response to an operation put into place in order to fulfill the goal of a certain action.

Having made the case for the centrality of operations over actions, I will now turn to a discussion of other findings that surfaced from analysis of the data.

6.5 – Other relevant findings

I started this research project positioning Stephen as an expert in the field of ELTE and discussed traditional approaches to the study of expertise as well as contemporary ones.

My initial depiction portrayed Stephen as an expert by citing concrete evidence of traits that could be correlated to the characteristics of an expert as described by Tsui (2005). This author views expertise as processual in nature, and adhering to such a view implies that expertise is contingent upon the expert's engagement *in* and *with* activity oriented towards extending current levels of expert performance.

I would like to return to the initial depiction of Stephen as an expert in process as an incidental finding during this study. To reiterate, Tsui (2005) characterizes expertise as a process when the following are evidenced: rigorous training, engagement in constant reflection on teaching activity, and the setting of progressively higher goals aimed at extending current levels of performance.

There were various instances when we saw Stephen as a processual expert. He repeatedly made mention to aspects of his mediation he was not aware of before this study. He also acknowledged that his own understanding of some of the key concepts he taught was perfected as he engaged in teaching activity and tried to mediate the students' learning efforts. What is more, he expressed that there were areas of the content that he taught which he did not understand, at first, and that it was through engaging with various iterations of the course that those concepts became clear. But perhaps the most powerful acknowledgement was that he was, in fact, a learner of teaching together with his students.

All this evidence points to two relevant findings, one incidental and one intentional. The incidental one is the affirmation of Stephen's expert status. The intentional one is the fact that, as was expected at the onset of this project, Stephen's engagement in it provided him with the opportunity to engage in transformative action regarding his teaching, as the new realizations gained through his auditing the data and its analysis have afforded him the chance to focus on aspects of his teaching he can improve. In this sense, my intention to provide tactical authenticity to this study appears to have been fulfilled.

6.6 – Summary of Chapter VI

In this chapter I have discussed the findings in terms of designed-in and contingent scaffolding. I have substantiated Stephen's mediation as an organic MLE that can be equated with the requirements of Vygotsky's concept of *obuchenie*, and I have analyzed that mediation through the lens of CHAT, concluding that traditional characterizations of activity as a unit of analysis fail to focus on the operational level as a significant explanatory level for activity in motion. I have also advanced an alternative activity framework to understand mediation as a purposeful intervention within the ZPD. As a final reflection on this discussion, and in line with Backhurst's (2009) criticism of CHAT, I hope to have provided evidence that the role of the individual within an activity system has been underplayed. At least in what respects this particular case, the intentionality of Stephen's acting *with* his students made him a pivot for the affordances of expansion within and beyond each individual activity system which he inhabited. The data have shown that his purposeful implementation of various operations, more than the motive of the activity, is what propelled changes in the system that led other systems to emerge.

CHAPTER VII – CONCLUSIONS

7.1 – Some contributions of this enquiry

This section outlines the main contributions of this enquiry to the field of teaching in general, and of teacher education in particular. In the context of this case study, both are understood as sociocultural processes oriented towards the appropriation of academic concepts by students. These academic concepts would become cognitive tools that enhance Stephen's students' participation in various social activities, in our case, professional second language education.

By analyzing the way an expert instructor enacted his mediation of students' concept development I hope to have been able to provide insights into how professionals think *on* and *in* action (the designed-in and contingent levels of scaffolding).

One particularly salient contribution I feel this study makes lies in the selection of the participant. To my knowledge, there are no studies which have followed the same instructor as he taught the same course online and on-site and, in the same university. Additionally, I expect the study to contribute to research on contingent mediation, which has not been investigated in this manner previously.

The data also pointed at the need to explore the CHAT framework in more detail. Created in the second half of the last century (Leontiev, 1978) and widely referenced in the first half of this century (Engeström, 2000, 2008, 2010), this theory has sustained a series of axioms that the data in this enquiry seem to contradict.

In particular, the notion that activities are bound by the interaction of their internal components, and that transformations or alterations in the components lead to changes in the overall system can be questioned. Data from this case study showed that a change in the mediational tools prompted modifications in various

aspects of the activity and that these happened mostly at the level of operations and not necessarily at the level of action.

Additionally, data showed that, at least in this case, the notions of *obuchenie* and *perezhivanie* are inextricably linked between them as well as with the affordances offered by the creation of an IDZ where learning can happen, thus opening up ZPDs where students' concept development and appropriation can occur. In particular, the notion that both *obuchenie* and *perezhivanie* are needed by the mediator to be able to identify growth points and thus vary his choice of operations to contingently respond to the emerging disturbances in students' understanding of new scientific concepts added to the notion of dialectic, which is a characteristic of a Sociocultural perspective. In this sense, I consider that the inclusion of these two Vygotskyan constructs, which are not frequently referred to in the literature, can reinforce the explanatory value of what constitutes organic mediation, as they articulate the dialectic of cognition and affect and the role they play in formal education.

In this regard, the study provided an organic characterization of the act of mediation in formal educational settings. The model developed here encompasses a synthesis of extensive research on mediation, and also incorporates applications to new contexts (i.e. online, asynchronous interaction and computer-mediated instruction). Mediation has been characterized as organic as the criteria developed in the model in Chapter III point at a systemic approach to the act of mediation, in the same way as different organs contribute to the well-being of a body. When one of those organs fails to fulfill its function, other organs in the system are affected.

This particular conceptualization of the act of mediation takes it beyond the traditional understanding of classroom interaction (that which occurs within the confines of four walls) and extends the understanding of mediation to the new educational configurations that are being applied at all levels of education worldwide.

However, it should be noted that this conceptualization of mediation as organic is circumscribed to the present case study. Because of this, it is not intended to be generalized, but it is my hope that it provides fodder for the reconceptualization of prior and future attempts at its characterization and analysis.

As a corollary to this elaboration on mediation, I believe the educational model developed by Stephen to guide his teaching provides a useful framework to rethink teaching and learning as dialectical process in constant interaction, where the roles of teacher and learner can be reconceptualized as teacher-learner and learner-teacher. The data presented here attests to that dialectical nature and has the potential to also resonate with the experience of other researchers and instructors, thus prompting, at least, reflection on their roles.

Lastly, as an afterthought to the elaboration so far, and at a personal level, the realization that expertise is, indeed, a process and not a state became a salient point. Stephen's ongoing reflection on his teaching, the reference to the many "Aha!" moments he experienced through teaching, as evidenced in the data, seem to confirm that an expert instructor is always in the process of becoming, as each iteration of teaching provides a new personal growth point.

7.2 – Implications

When undertaking a research project such as this case study, one enters the field with expectations and leaves the field completely changed. During the long process that it took to complete this enquiry, it became evident that the potential of such a study could affect not just Stephen, his academic community and myself, but also shed light on how teaching and learning occur within a particular context so that others in the broader academic community could profit from the information presented here. In particular, I hope to be able to contribute to the field of language teacher education and to the broader field of teaching.

7.2.1 – Second Language Teacher educators. This study presents an updated view on a perspective to teaching and learning which has only recently started to make an impact in the field of Second Language Teacher Education (Johnson, 2009). The Sociocultural perspective advocated for in this study and the data derived from it problematize current teacher education practices. In the field of ELT, the McDonalization of teacher education (Gray and Block, 2012) with its short, one-shot, recipe-bound training programs has rendered the field subject to pre-specified scripts and routinized teaching behaviors that are supposedly, suitable for any context. This "technicist epistemology" (Freeman, 2002, p. 8) actually stands in the way of teacher development and is counterintuitive to a view of teacher learning as the one presented here: dialectical, dialogic and distributed. It is hoped that teacher educators accessing the data in this case study can shift their focus from an over-reliance on prescribed actions, and engage in the exploration of how the operations that make up those actions contribute (or not) to the development of the student teachers under their supervision. Additionally, data have made evident how an IDZ can be successfully operationalized through a series of characteristics that bind mediational activity (intentionality, reciprocity, transcendence, contingent multimodality and social-to-individual orientation). One particularly salient realization that might contribute to the field of language teacher education is the way in which Stephen imbued his courses with elements of transcendence. The mediational moves he implemented to this avail appear as one interesting conduit for resolving the ever-present theory-practice gap found in many teacher education courses.

Hence, one relevant implication of the findings regarding Stephen's enactment of *obuchenie* is his particular approach to designed-in organic mediation, is that it holds the potential of becoming a viable model of good educational practice guided by solid pedagogical principles. Because the data in the case have shown how, through mediation, the instructor and the students' cognitions operate as a shared space where knowledge is co-constructed, the pedagogical model presented

here may become a useful exploratory tool for a reconfiguration of current SLTE practices.

7.2.2 – Online course designers and curriculum developers. The data presented in this case study also depict an example of effective online teaching through purposeful organic mediation. The notion that the online medium presents both affordances and constraints is not new. However, the ways in which Stephen resolved the constraints presented by the medium can prove a catalyst for reflection on how online teaching tools could be improved and expanded. In particular, the way in which Stephen designed his courses and the affordances he put into place for students to be able to succeed in their quest for learning can usefully be extrapolated to similar situations. Stephen's understanding of the online medium is realistic and has proved instrumental for him in creating opportunities for mediation of learning. He admitted that in online environments most of the scaffolding is provided by the system and by the course design. Taking his course design as a template of best practices could be one of the contributions to the enhancement of online teaching and learning as his actions attest to how an online instructor can work around the constraints offered by the medium in order to continue providing useful mediation at the point of need. One salient example of this is the way in which Stephen chose to provide feedback to students using every affordance available to him through the LMS. This attempt to liberate himself from the straightjacket imposed by the LMS he was forced to use provides an example of professional development stemming from ongoing, reflective involvement in professional practice. It should be noted that the end goal of this professional development was not the improvement of Stephen's teaching competence *per se*, but the search for more authentic ways to connect with his students. The data show how the guidance he offered through his feedback (both in writing and through short sound recordings) was a purposeful strategy developed to circumvent the limitations of the LMS so that his teaching could still be guided by solid pedagogical principles oriented towards learners' development.

7.2.3 – Sociocultural researchers. Sociocultural researchers, particularly those that work with CHAT, might find some of the claims made in this case study counter-intuitive to the understanding of CHAT favored in the field. The contradiction found in this study between the nature and role of actions and operations within an activity system may at least open up a dialog as to the feasibility of this particular finding against the backdrop of current research on CHAT.

Additionally, the exploration of the concepts of *obuchenie* and *perezhivanie*, which are not frequently quoted in the literature (Johnson and Golombek, 2016; Vygotsky, 1987) brings to the foreground a useful heuristic that might help clarify the roles of teachers and learners when engaged in organic mediation. Particularly, the exploration of aspects of *perezhivanie* during the analysis of the data helped naturally incorporate the affective dimension in the teaching-learning process understood as occurring through organic mediation. Because the focus of analysis in CHAT is the activity itself, studying the affective consequences of motive-oriented activity holds the potential to place the subject in a more relevant position within the overall activity system.

7.2.4 – Teachers and Instructors in general. Finally, I believe that the data presented here and its analysis can resonate with teachers and instructors in general. Current discussions of effective teaching center around the contributions to the teaching and learning processes individually made by teachers or students. However, within a Sociocultural perspective, effective teaching is defined in terms of a unique relationship established by *both* teachers and students working in collaboration and creating an IDZ that helps them both attune to each other's current and future levels of performance so that organic mediational actions can be put into place that propel their learning, and, as a consequence, their development.

Understanding this teaching-learning dialectic, the role of the subjective affective experience of the relationship and of the ways to co-create a safe learning space where cognition lies in the opportunities for mutual mediation, such as the

one exemplified in this case study, may contribute to the development of more just forms of teaching and learning.

7.3 – Limitations

Understanding the limitation of a study such as the present one is one more way of contextualizing the findings, as well as a tool for imbuing my conclusions of credibility. What is more, acknowledging these limitations provides a measure of intellectual honesty which is desirable in any scientific enquiry.

I have to acknowledge several limitations in this study. First and foremost, being an intrinsic case study, the findings of the enquiry cannot be generalized even to other instructors working in the same institution as the participant. This case study, its design, data and the interpretation of those data are a highly situated academic endeavor that was not intended as an explanatory model to be replicated but as an instance of intellectual curiosity which brought participant and researcher together at a particular point in their histories. From this point of view, neither the participant nor the researcher is the same person that undertook this study as they have both been changed by participating in it. Nevertheless, it is hoped that the richly descriptive data presented here and some of the conclusions deemed from them may resonate with readers of this work who might feel identified with some of the ideas presented here.

Secondly, as was explained in Chapter IV, this research project was constructed as a consequence of my own interest in the subject and in the participant. Even though I ascertained full participation by Stephen and he had the chance to audit the methods for data collection, the data collected and my interpretation of his interpretations, there is always the risk of the researcher contaminating the participant and obtaining data biased towards the researcher's perspectives and intentions. Even when every effort was made to prevent this from happening, this limitation must be acknowledged.

Regarding my personal involvement in the case, the analysis of the participants' interpretation of his reality was necessarily conditioned by my ontological, epistemological and methodological positionings. Additionally, as I interacted with the participant over extended periods of time, and accessed the data numerous times for different purposes, my original intention of gathering naturally occurring events may not have been fulfilled.

Another limitation is a methodological one. Because the decision was made to allow the participant to select the segments of his classes that he considered representative of his teaching style, it was not possible to observe complete on-site teaching sequences (for example, the camera was turned off while students worked in groups or pairs for sustained periods of time). The missing segments may have shown other forms of mediation that were not included in this report.

Lastly, the study only looked at one delivery of each of the courses. Had I had the time, I would have chosen to undertake a longitudinal case study in order to ascertain richer and more complete data.

7.4 – Recommendations for future research

Based on the findings, implications and limitations of the present enquiry, I would like to propose the following areas for further research:

- Because this was an intrinsic case study, it would be relevant to replicate the study with more participants so as to imbue the research questions of a richer data set.

- The nature and role of mediational moves within a CHAT framework may also prove a relevant area for research. Though considered to be third generation (Engeström, 2000, 2001) current depictions of CHAT continue focusing on the activity as a unit of analysis and characterize activity, actions and operations

in the same way they have always been characterized. In this sense, these characterizations have become axiomatic. However, data in this case study have yielded that these axioms may not always remain constant and that alternative interpretations could be sought. The theory of expansive learning (Engeström, 2001) can be one of the ways in which the findings in this study could be understood as departing from the canon.

- Another aspect of CHAT that begs further research is the effect that the agency of the individual might have on the whole activity system. As it has been explained before, the role of the individual has been played down in CHAT research so far, prioritizing the activity itself over the component parts of the system. Addressing issues of agency may help understand how the dynamics of performance have a bear on the overall system, and may open up avenues for further research.

- Finally, and given that expertise is a highly situated and processual construct, it would be interesting to replicate the study in a longitudinal way so as to be able to see the dialectical changes in instructor's performance over time, as he extends and refines his understanding of the subject matter with each iteration of their course.

7.5 – Final remarks

I would like to conclude this report with a quotation from Stephen that has not been included in the data sets analyzed. To me, this quotation summarizes not only the intent but the outcome of this research project and attests to its alignment and suitability. This case study sought to understand how expert mediation was enacted within two very different teaching and learning environments. Along the research process it became evident that, at least in this case, the teaching/learning dialectic is not unidirectional but intentional and highly interactive. The boundaries of teacher and learner are diffused, and mediational activity becomes a reciprocal interaction where all participants experience this dialectic. Stephen's serendipitous realization

of his positioning reflects my own fascination with the findings of the present research. He said:

> In my context learning becomes the appropriation of both, scientific concepts but also the practical knowledge associated to those concepts as they are used in independent professional practice. What is fascinating is that it is a reciprocal process as that while I'm teaching I'm also learning because I'm also constructing knowledge based on each experience and each new student I meet. **(SSI, 01:25:29).**

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APPENDIX A – Participant's Informed Consent Form

I freely and voluntarily consent to be a participant in the research project on the topic of 'Understanding Expert Mediation in Online and On-site Settings' to be conducted by Mr. Gabriel Díaz Maggioli as part of his Doctorate in Education (Ed. D.) thesis at the School of Education, University of Bath, United Kingdom. I understand that the contents of the study have been disclosed only partially so as to avoid the contamination of data. I have been informed that the data collection methods to be used include two interviews, self-selected observations of class episodes, observation by the researcher of my interaction with students via a Learning Management System, and the analysis of documents (my participation in online discussion board and the feedback I provide my students on the first draft of their final assignment). I have been explained the nature of these methods to my satisfaction. I understand that my participation will take between 12 and 15 months.

I have been told that my responses will be kept strictly confidential. I also understand that my participation in this study is voluntary and that I am free to withdraw from it at any time without giving any reason and without being penalized or disadvantaged in any way. In addition, I am free to decline to respond to any particular question(s) or to complete any particular task(s). Should I withdraw from the study before data collection is completed, my data will be returned to me or I will be given the chance to have it destroyed. I can also ask the researcher to delete or not make use of some of the information I provide.

My real name will not be linked with the research materials and I will not be identified or identifiable in any report subsequently produced by the researcher. I understand that my information will be held and processed to be used anonymously for internal publication for Mr. Diaz's thesis and submitted for assessment with a view to being published in academic journals and conferences.

I have been given the opportunity to ask questions regarding the study and my questions have been answered entirely to my satisfaction. I have been informed that if I have any general questions about this project, I should feel free to contact Mr. Díaz at his e- mail address: diazmagg@xxxxxxxxx.edu. If I have any comments or concerns about the ethics or procedures involved in this study, I can contact Mr. Diaz's supervisor, Dr. Hugo Santiago Sánchez, at his e-mail address: H.S.Sanchez@bath.ac.uk.

I have read and understood all of the above and consent to participate in this study. Also, I acknowledge having received a copy of this consent form for my records.

_____ _____

Participant's Signature Date

I have explained and defined in detail the research procedure in which the participant has consented to participate. I will retain a copy of this consent form for my records.

_____ _____

Researcher's Signature Date

APPENDIX B – Students' Informed Consent Form

STUDENTS' CONSENT FORM

I freely and voluntarily consent to indirectly participate in the research project on the topic of 'Understanding Expert Mediation in Online and On-site Settings' to be conducted by Mr. Gabriel Díaz Maggioli as part of his Doctorate in Education (Ed. D.) thesis at the School of Education, University of Bath, United Kingdom. I understand that one of the participants in the study is my professor of XXXXXXX and that in order to carry out the study it will be necessary for Mr. Díaz to record on-site classes and/or, observe the interaction of my professor and my peers in an online course. I have been explained the nature of these methods to my satisfaction. I understand that my participation will be limited to allowing to being recorded or sections of my writing transcribed for the purpose of document analysis.

I have been told that my responses will be kept strictly confidential. I also understand that my participation in this study is voluntary and that I am free to withdraw from it at any time without giving any reason and without being penalized or disadvantaged in any way. In addition, I am free to decline to complete any particular task(s) set by the researcher, should there be a need for that. Should I withdraw from the study before data collection is completed, my data will be returned to me or I will be given the chance to have it destroyed. I can also ask the researcher to delete or not make use of some of the information I provide either in the on-site classes or during online discussions and assignments.

My real name will not be linked with the research materials and I will not be identified or identifiable in any report subsequently produced by the researcher. I understand that my information will be held and processed to be used anonymously for the internal publication of Mr. Diaz's thesis and submitted for assessment with a view to being published in academic journals and conferences.

I have been given the opportunity to ask questions regarding the study and my questions have been answered entirely to my satisfaction. I have been informed that if I have any general questions about this project, I should feel free to contact Mr. Díaz at his e- mail address: diazmagg@xxxxxx.edu. If I have any comments or concerns about the ethics or procedures involved in this study, I can contact Mr. Diaz's supervisor, Dr. Hugo Santiago Sánchez, at his e-mail address: H.S.Sanchez@bath.ac.uk.

I have read and understood all of the above and consent to participate in this study. Also, I acknowledge having received a copy of this consent form for my records.

_____ _____

Participant's Signature Date

I have explained and defined in detail the research procedure in which the participant has consented to participate. I will retain a copy of this consent form for my records.

_____ _____

Researcher's Signature Date

APPENDIX C – Sample coded data

C.1 – Sample Coding of Transcribed Videoed Lessons

Theme: ***Application of the new scientific concepts***	**Format**	**Function**
Stephen: Lexical? And remember that lexical cohesive devices including things like…? There's an example here. Very basic level. There is…	Flag example	Direct students' attention
Student 5: Repetition.	Response	
Stephen: Repetition. Of?	Question	Open up discourse
Student 5: Bill	Response	
Stephen: Bill. Bill. So, they've got direct repetition. Anything else? Anything else? Kind of lexical sets?	Question	Affirm Open up discourse
Students: (mumble)		
Stephen: Lesley?	Nominates one student	Demand new academic concept
Student 9: I was thinking, 'treated'? Treatment, treated.	Response	
Stephen: So, it belongs to a semantic set. It's got something in common. Exactly! So, there is that connection, yeah.	Recapping	Explain Clarify
Student 3: Cause, effect?	Question	
Stephen: Sorry?	Question	Request for repetition
Student 3: Cause effect?	Question	
Stephen: You mean the overall structure? Ah…	Question	Request for clarification
Student 4: Or problem solution.	Question	
Stephen: Well, is it, uh, you're right in the sense that there is a …	Affirming	Confirm
Student 1: a reason implied.	Provides information	
Students 2: If you have it, you'll be pain free, like Bill.	Provides information	
Stephen: Bill had a problem and now he's pain free. Yeah ok. There's a sort of rhetorical organization. But before we look at anything else that's lexical or grammatical then. The next order. Grammatical, there is…?	Flags example and questions	Demand new scientific concept
Student 8: Pronouns.	Response	
Stephen: Pronouns. Pronouns.	Appropriating students' discourse	Confirm
Stephen: Exactly! Anaphoric reference. So, we've got uh, 'he' uh, the reference referent is clearly 'Bill.' Ja. I'm not interested in the stuff. That's also clearly metaphoric, uh, anaphoric reference in the first sentence. But (mumble) not interested in the sentence's internal features at the moment. And anything else? Any other?	Recap	Summary

C.2 – Sample Coding of Discussion Board Posting

Theme: ***Introduction of the new scientific concept. Discussion after the online presentation***	**FORMAT**	**FUNCTION**
Stephen: Summer writes" Another potential problem is that they may not represent instances of authentic language ... " Well, in a sense they are authentic - they haven't been specially written for learners. But, you're right, that they don't necessarily replicate the features of informal face-to-face conversation, or even informal written texts. (Although some writers, e.g. some dramatists, do attempt to do this more than others).	Appropriating students' discourse	Explain Confirm
Stephen: Bob writes: "a person may want to read and may try to read, but if they simply aren't there yet, enough with the language it would possibly take all day to get through a couple of paragraphs."	Appropriating students' discourse	
Stephen: Yes, this is a good point, and it can be de-motivating to 'fail' in this way. Is there a case, therefore, for simplified versions of literary works?		Confirm Expand Redirect (to group)
Bob: "If they are used in the classroom how do we deploy that as a teaching strategy?"	Question by student	
Stephen: Good question, Bob. Any tips/pointers from anyone?	Appropriating students' discourse.	Redirect (to group)
Stephen: On the subject of graphic novels and comic books, Stephen Krashen (of 'comprehensible input' fame) has been arguing - vociferously - for years on the merits of said genres as launching pads for first language literacy. The fact that there is visual support ensures - apart from anything else - a greater degree of comprehensibility. You can read some of his thoughts on this wiki: http://dr-krashen-and-comics.wikispaces.com/Comic+Books+and+Language+Development	Explain	Expand Provide resource
Helga: Ah ha! Krashen will be grinning from ear to ear!	Comment by student	
Stephen: Good point, Helga, and gratification ... and also about the dangers of over-challenging the learners. Clearly, it's a fine line, but allowing them some degree of choice in what they read may help counter the possible negative effects. This in turn might mean teaching some strategies whereby they can judge the difficulty of a text - e.g. taking a section in the book and counting up the number of words that are unfamiliar to them. If this is more than 5%, chances are the book will be heavy going.	Acknowledge	Confirm Expand Explain Provide resource

C.3 – Sample Coding of Retrospective Interview

After visualizing a videoclip of ME 2 minutes 0:00 – 4:06		
Theme:	**FORMAT**	**FUNCTION**
Me: Well, why do you say it was hard work?	Question	
Stephen: Well, I'm just looking at it there and they seem to be having, struggling to, first of all, uh, focus on what I wanted initially, which was the categories of lexical and grammatical cohesion rather than the whole discourse frame.	Flag example	Focusing
Stephen: One of them, in fact, brought that up – that whole thing about what is the problem-solution text. That wasn't what I was aiming at, at that point. Just, the actual discourse organization.	Recall	Reflection on the outcome
Stephen: In fact, mm, I think that was the, that was the content of the session that was going to immediately follow.	Recall	Explain
Stephen: So, I had to kind of deal with that without putting the student down, um, you know, because it was a fair point, but it wasn't really relevant to what I was trying to get, which is always the problem, I think, when you spring things on them like that and it's done publicly, I mean, I, just trying to remember, I don't think I – I might have put them into groups or pairs prior to doing that open class thing. It would have been perhaps a better idea, had I given - that they were kind of struggling to locate these features, which I thought in the text were fairly obvious.	Flag example	Explain Reflecting Participant's *obuchenie*

APPENDIX D – Sample coding of Contingent Scaffolds

Themes	On-site teaching		Discussion boards		Response to assignments	
	Format	Function	Format	Function	Format	Function
Macrocomment	Nomination of session and topic of the session	Orient students towards the new scientific concepts.	Quotation	Orientation to scientific knowledge	Acknowledge	Confirm good aspects.
					Acknowledge	Expand
					Acknowledge	Affirm
					Explain	Flag limitation
					Appropriate students' discourse	Explain
					Appropriate students' discourse	Reinforce scientific concepts
					Question	Flag errors
					Explain	Redirect
					Explain	Clarify
					Explain	Reinforce scientific concepts
					Appropriate (missing) students') discourse	Reinforce scientific concepts
					Acknowledge	Redirect through questions
					Appropriate missing students' discourse	Reinforce scientific concepts
Activation of students' background knowledge	Set the context	Engage students in activity	Question	Problematize the quote.	Not observed	Not observed
	Confirm answers	Agree and encourage students to continue		Activate background knowledge.		
	Question	Problematize scientific concepts through comparison	Confirm answer	Flag error		
				Redirect to scientific concept		
	Question	Check understanding and lead	Confirm answer	Reinforce scientific concept		
				Exemplify		
	Question	Problematize scientific concepts		Redirect to anchor text		
				Acknowledge		
	Flag examples					

Themes	On-site teaching		Discussion boards		Response to assignments	
	Format	**Function**	**Format**	**Function**	**Format**	**Function**
Introduction of the new scientific concepts	Recap	Exemplify and model	Appropriate students' discourse	Extend scientific concept	Not observed	Not observed
		Summarize		Exemplify		
	Question	Assisted recall	Quotation from anchor text (academic)	Problematize new scientific concept		
	Question	Assisted recall				
	Question	Demand scientific concept	Appropriate students' discourse	Clarifies		
				Acknowledge		
	Nominate student	Demand scientific concept	Appropriate students' discourse	Question to redirect		
			Question			
	Appropriate student's discourse	Clarify		Redirect student's question.		
	Question	Direct students' attention		Explain to expand and/or clarify		
	Redirect to anchor text	Demand scientific concept		Suggest resource		
			Appropriate students' discourse	Expand		
	Question	Demand scientific concept		Explain		
			Appropriate students' discourse	Acknowledge		
	Question	Demand scientific concept		Exemplify		
				Explain		
	Recap	Summarize				
Exemplification of the new scientific concepts	Question	Direct students' attention	Question	Acknowledge	Not observed	Not observed
				Referencing previous work		
	Question	Focus on scientific concept		Exemplify		
				Expand		
	Confirm answers	Focus on scientific concept	Appropriate students' discourse	Explain		
				Quote		
				Exemplify		
Comprehension check of the new scientific concepts	Question	Pose problem	Question generated by student	Clarify	Not observed	Not observed
	Question	Prose problem		Explain		
	Question	Reinforce concept	Appropriate students' discourse	Clarify		
				Exemplify		
	Question	Reinforce concept		Question		

Themes	On-site teaching		Discussion boards		Response to assignments	
	Format	**Function**	**Format**	**Function**	**Format**	**Function**
Application of the new scientific concepts	Recap	Introduce incidental concept	Appropriate students' discourse	Acknowledge	Not observed	Not observed
	Recap	Summarize		Clarify		
	Flag example	Direct students' attention	Confirm	Flag example		
	Recap	Explain and clarify	Question	Open up discourse		
	Flag example	Explain	Confirm	Explain		
	Flag example	Summarize		Extend		
			Confirm	Extend		
			Appropriate students' discourse	Redirect		
			Recap	Explain		
				Exemplify		
				Summarize		
Reinforcement and extension of the new scientific concepts	Flag example	Focus on scientific concept	Appropriate students' discourse	Acknowledge	Not observed	Not observed
	Question	Demand scientific concept	Question	Extend		
	Flag example for analysis	Demand scientific concept		Problematize		
	Explain	Review and reinforce scientific concept	Question	Redirect		
	Confirm students' answer	Reinforce the scientific concept		Clarify		
				Redirect		
				Problematize		
			Confirm	Acknowledge		
				Explain		
Readiness probe for independent work	Question	Demand scientific concept	Appropriate students' discourse	Acknowledge	Not observed	Not observed
	Question	Provide options to reinforce concept				
	Confirm students' answers	Open up discourse				
	Flag example					

Themes	On-site teaching		Discussion boards		Response to assignments	
	Format	**Function**	**Format**	**Function**	**Format**	**Function**
Assignment	Quote with a brief explanation and guiding questions or instructions	Demand scientific concept Orient the application of the new scientific concepts	Quote with a brief explanation and guiding questions or instructions	Orient the application of the new scientific concepts	Quote with a brief explanation and guiding questions or instructions	Orient the application of the new scientific concepts

APPENDIX E – Validation interview with participant

June 21 – 12:30 pm to 13:52

Summary of some of the key findings to discuss

Organization of lessons – Designed-in

Sample analysis of two sets of PowerPoint presentations from the Language Analysis 1 course (the course has been anonymized to protect your identity):

Slide	Module 4	Module 6
1	Course name and number and title of session: Phonology	Course name and number and title of session: Phrases, clauses and sentences.
2	Series of sentences about Phonology with blanks on key terms associated with the discipline.	Substitution table labeled just with grammatical categories for students to make sentences
3	List of ten words including key terms (e.g. phoneme, vowel, alveolar), sound symbols, a sentence transcribed in symbols and the word “church” to be transcribed (symbols could be inferred from the transcribed sentence above).	Names of songs (phrases, clauses and sentences) for students to analyze using the grammar terminology at their disposal
4	Diagram of organs of speech labeled. Animation superimposes the same diagram but with an empty vowel quadrant. Another animation places the vowels in the quadrant.	Analysis of names of films to introduce the concepts of phrase, clause and sentence
5	Charts containing consonants and vowels in English and other languages (e.g. including clicks, implosives and ejectives) with their corresponding symbols. Superimposed soundtrack for students to recognize sounds and associate them with their corresponding symbol.	Names of songs for students to apply the new terminology
6	A list of words that vary by one phoneme only	Detailed answers on the activity above
7	Vowel quadrant for students to put the words in the correct place of articulation.	Summary of clause types adapted from Masters (1996)
8	Inclusion of diphthongs in the vowel chart.	Tree diagrams of the new concepts starting with the basic noun phrase and, through animations adding other sentence elements.
9	A diagram showing organs of speech, complete vowel quadrant with vowels and diphthongs, all manners of vowel articulation and a link to a webpage where students can see x-rays of actual vowel production.	More tree diagrams of the new concepts
10	Varieties of English. Vowel quadrant with places of articulation of vowels in New Zealand, Yorkshire, Northern Ireland,	Unlabeled tree diagram of a complete sentence for students to label

	Scotland, South Wales and Cockney plus Received Pronunciation for students to try sounding vowels according to the different varieties.	
11	Chart showing vowel production in connected speech. Example features include intrusion (e.g. drawing)	Lyrics from songs for students to analyze
12	Words and phrases in phonetic script for students to provide the words in orthographic script.	Incomplete substitution table for students to complete
13	Names of characters from films and TV series which, when pronounced show particular articulations of vowels (e.g. move to semivowels)	Lyrics from songs including negative and interrogative for students to analyze.
14	Sentences in phonetic script.	Incomplete substitution table of negatives for students to complete
15	Lessons from an old English language teaching textbook using the Phonetic approach.	Jumbled words for students to sequence into clauses and sentences.
16	Adrian Underhill's Phonemic Chart.	Excerpts of language practice activities from language learning activity books for analysis
17	Gattegno's original English Sound Color Chart	Excerpt of a student's book for language learning to deconstruct how clauses and sentences are presented.
18	Activities to do with Underhill's sound chart derived from Gattegno's instructions on how to use the Sound Color Chart.	Excerpt from a resource book belonging to a language learning textbook series for students to analyze.
19	Link to the webpage for International Dialects of English for students to listen to listen to some non-English speakers speaking English and transcribing parts of the recordings.	Picture from a language learning coursebook for students to create a teaching and practice sequence of the concept presented in the session.
20	Instructions: Write a short description of themselves in English and transcribe that using phonemic (not phonetic) script, and identify the variety of English they use.	Photo of students in a classroom interacting using a handout with pictures. Transcript of the interaction. Students have to analyze learner language and provide solutions to problems that may arise in the use of the concepts taught in the session.

I gathered you organize your on-site lessons through your PPTs in this way. Is this a faithful representation of your approach to pedagogy?

- Macrocomment
- Activation of students' background knowledge
- Introduction of new scientific concepts
- Exemplification of new scientific concepts
- Comprehension check of new scientific concepts
- Application of new scientific concepts.
- Reinforcement and extension of new scientific concepts
- Readiness probe for independent work on scientific concepts.
- Assessment of the module.

How is this arrangement similar to or different from your organization of the online course?

Scaffolds used during the on-site sessions

- Teaching style: Dialogic teaching, very sociocultural in its shape and intent.
- You scaffold students' understanding all the time through questions.
- Mostly: Initiation – Response – Feedback.
- Feedback move opens up prospectiveness for students to continue elaborating.
- Moves during feedback include: more questions, recasting, reformulating, providing input and posing questions, redirecting to students.

How do you decide when to "phase" a scaffold?
What tells you students have learned?
What other scaffolds do you feel you use during interactive teaching?

Feedback on assignments has particular moves:

- Macrocomment
- Stressing the positive
- Pinpointing the negative
- Providing information
- Suggesting resources

Why do you give feedback this way?
How do you make sure students take up your feedback?

Discussion boards

I feel your participation on the DBs is mostly an attempt to try and mimic the interactivity characteristic of your on-site teaching. However, the medium poses limitations. You try to replicate the same scaffolds. This is a shortlist of scaffolds I detected:

- Recasting what a participant said. Clarification. Posing another question.
- Recasting what a participant said. Extension of their ideas. Summary comment.
- Introduction of bibliographic input to either confirm or dispute a point made by a participant.
- Bouncing off questions to participants ask back to the participants before committing to an answer.

Are there any other scaffolds that you use in your online teaching? Why? Can you cite examples of those from the Language Analysis course?

Other relevant issues to discuss

I will give answers to these questions and would appreciate if you could say whether you agree with me or not

- What is teaching?
- What is learning?
- Why do your students need to learn about language?
- How did you decide what to include in the syllabus for language analysis?
- What are the advantages and disadvantages of the online medium?
- What are the advantages and disadvantages of the on-site medium?
- When and how do you know that students actually "got it"? Can you give any example?
- What, of your on-site pedagogy do you translate to the online medium and vice versa?